

# THE AUTOMOBILE

## New England's Big Show

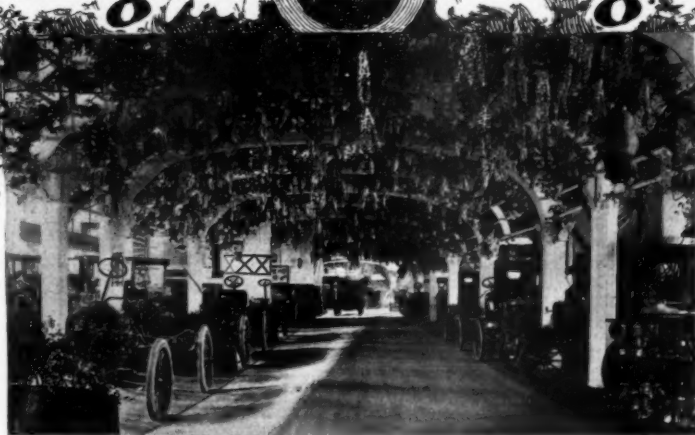
BOSTON, March 11.—

Remarkable expansion has been the characteristic key note of the annual exhibitions of the Boston Automobile Dealers' Association, and the Sixth Annual Show, which opened in Mechanics Building on Saturday evening with an attendance of over 30,000 people, is the most comprehensive exhibit of automobiles,

automobile-making material and accessories that has ever been congregated under one roof in the New England States. Hitherto much of the available space has been taken up with exhibits of motor boats, so much so that it has been necessary to secure extra space in Horticultural Hall in addition to Mechanics Building. The advantage of an exclusive automobile and accessories exhibit is at once apparent to the visitor in the tasteful arrangement of the cars and the ample space allowed for a comprehensive inspection of the wares displayed. The motor boat element has, however, not been entirely eliminated, as in the basement two or three models are shown. But the basement is primarily devoted to the commercial car, the display of which is in keeping with the rapid progress which is being made in the development of this important branch of the industry. Poor lighting here, however, detracts from the effectiveness of the exhibits.

### Business Brisk from the Start.

When it was officially announced that 32,000 people had visited the show on the opening night, and that even in the midst of that tremendous crowd which practically filled every available inch of space in the huge building, sales of cars had been made, the statement seemed almost a miracle. In fact, it seems as if the public had been waiting for the opening of the show before doing business. All through the winter cars have been sold in Boston, probably in greater numbers than in most of the other large places, and there are not a few leading dealers who can show a better business through November, December, January and February than last year, but



judging from the sales reported during the opening days of the show, the Boston public had not been supplied, to say nothing of the New England back counties which had still to be heard from.

Not only has the Boston show been an exception to the general run this season in that it has been a success from the point of view of the exhibitors

who gauge show success by the number of orders taken and the prospects listed, but it has been a success from the mechanical standpoint, for it is the most complete show that has been held. No discriminating line whatever is drawn in Boston between any factions of manufacturers; they all bunk together in harmony, and this accounts in no small measure for the completeness of the exhibit. But of more importance, perhaps, is the fact that now the majority of the manufacturers have their complete line ready for 1908. When the New York shows were held in October and November, and even at the time of the Chicago show in December not all the manufacturers by any means had their cars ready for exhibition and they had to rush through show material. Since those shows, however, the factories have been at work producing the regular line of cars for the riding season, and they are shown complete for the first time at this exhibition.

Not a few of the manufacturers who have traveled the show circuit are loud in their praise of what Boston has to offer and any doubters of the value of a late show in New England for retail purposes have been completely won over.

### General Effectiveness of Decorations.

As usual, the Boston dealers have scored another success with the decorations and general set up of the exhibits. The Japanese garden scene promised by Manager Chester I. Campbell comes up to the vivid advance descriptions, which is saying a good deal. While the temple gate effect in Grand Hall is not quite as picturesque as were the apple trees of last year, it has the advantage of giving a more roomy appearance to



Where the Snow Holds Forth.

the hall. In Exhibition Hall, where the aisles are all covered by wistaria arbors, the effect is exceedingly picturesque and the prestige of Grand Hall as the best part of the show is in danger. Exhibitors who have had much experience in other places are considerably surprised at the generosity of the Boston show management, which supplies along with the space and for the price thereof, not only the decorations, carpeting and the like, but the signs, the furniture and free telephones connecting with all parts of the building and with all sections of the metropolitan district.

There is a great variety at this show, greater, perhaps, than at any previous exhibition of the year, for there are included under the same roof domestic and foreign machines, licensed and unlicensed, gasoline, steam and electric, pleasure and commercial vehicles, and almost every different variety of design of body or chassis. Such prominent foreign cars as the Fiat and Renault, such leading Selden licenses as the Packard, Pierce, Peerless, Locomobile, Lozier and Royal; well-known independents like the Ford, Rambler, Rainier, Maxwell and Reo; gasoline car makers of both divisions, the White, Lane, Clark, Stanley and others of the steamers, the Baker, Bailey and Studebaker in the electrics, pleasure car makers too numerous to mention, the Rapid, Studebaker and other manufacturers of commercial vehicles are all in the Boston show.

At this show Boston has made the acquaintance for the first time with the high-wheeled motor carriage, and they appear to be good in wind and limb, and well adapted for some of the roads up north. As many as a half-dozen different makes of buggies are on exhibition, and agencies have

been placed for two or more in Boston. It is noticeable that the horseless buggy idea is taken to rather partially by the show visitors from the rural parts.

Another novelty for the Boston show is a complete tire exhibit. Last year the leading tire manufacturers did not exhibit in Boston, but this year they are here in force, and are trying to make up for the loss which they suffered from not taking space a year ago. It has reached a time when

the retail purchaser is about as much interested in tires as he is in the automobiles themselves, and the tire exhibits are noticeably popular. The other accessories exhibits are complete, and occupy the whole of the large galleries of the two main halls of the building.

The idea of using the basement for the exhibition of pleasure carriages has not taken very well, and though there are a number of cars in the basement, the agents for which could not secure space on the main floor, it has been found difficult to get the crowd below stairs that accumulates around the exhibits above. There are several good exhibits of commercial wagons in the basement and some instructive exhibits of parts and of machinery.

One specially interesting division of the basement department is the model repair shop. Plans for this were secured by a competition conducted by the man-

agement. The shop occupies the space under the stage, and in it is some up-to-date machinery adapted for the work.

It is too early to make any prediction about what the Boston show will accomplish in the way of business, but, if the first few days may be taken as a criterion, the exhibitors are laying out a large amount of work for the remainder of the season.



## SOME NEW THINGS UNCOVERED AT THE HUB'S SHOW

**B**OSTON, March 12.—Boston's show has always been noted for the number of new things that make their debut at this closing event of the show season. New England has been the home of the manufacture of small metal wares for more than a century past, so that it is hardly to be wondered at that many of the novelties in the shape of accessories first see the light "Down East."

**Only New Car in Show, Auto Buggy.**—A New England recruit to the buggy type of automobile has been presented within the last few days by the Crown Motor Vehicle Com-

pany, with factories at Boston and Amesbury, Mass. The power plant of this popular type of automobile is a double opposed air-cooled motor with a bore of 4 3-8 inches and stroke of four inches, rated at 12-horsepower. Current is supplied by special storage batteries, and ignition is by jump spark. Lubrication is through a force feed sight oiler. The engine has three-point suspension and is controlled by spark and throttle levers in convenient position.

On account of its ability to withstand rough usage, an individual multiple disc clutch has been selected as the first



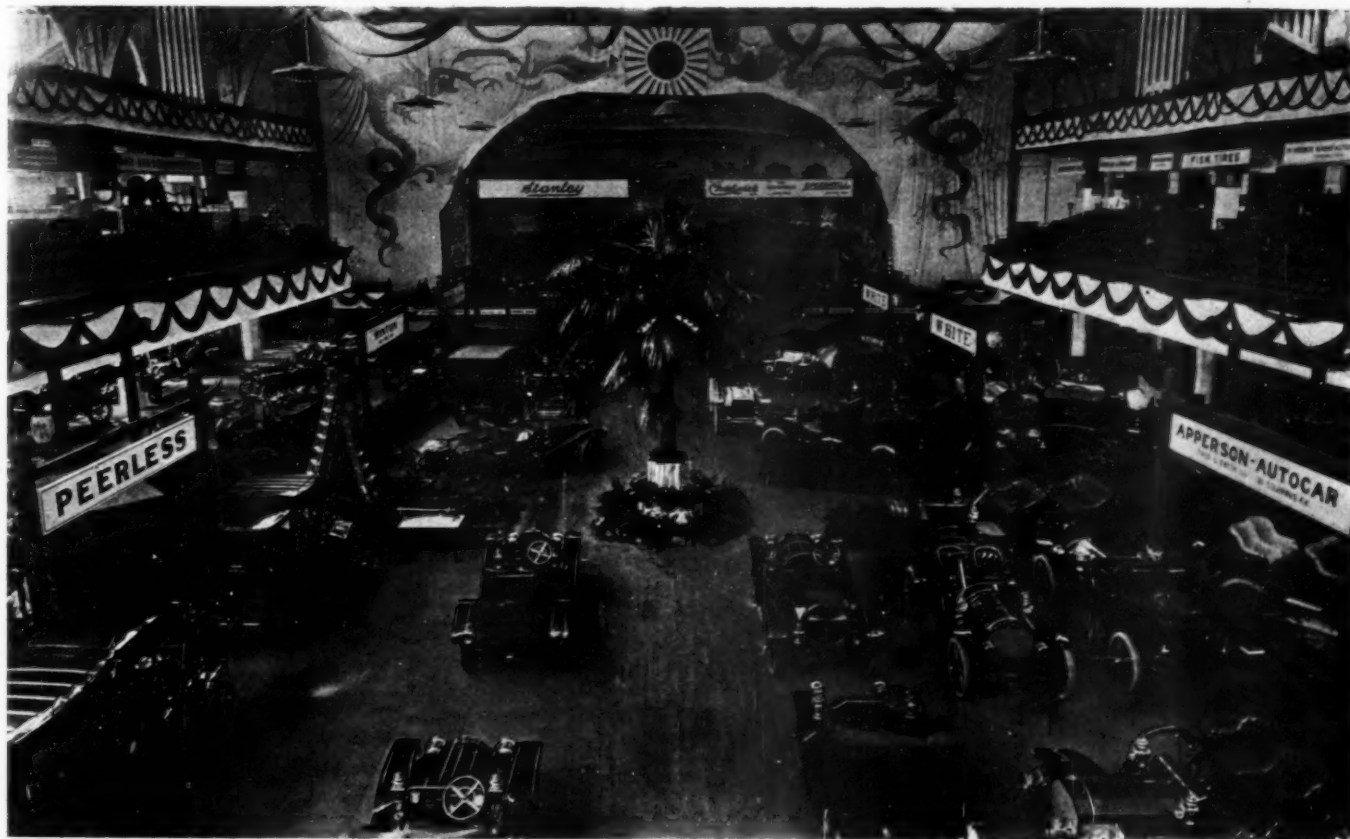
unit in the transmission of power from the engine to the road wheels. There are two forward and two reverse speeds, through sliding gear, and spur gear type of differential. All bearings are of Parsons white bronze and of ample size. Brakes are of the double expanding type on the rear road wheel drums.

To ensure easy riding over rough roads, full elliptic springs are fitted front and rear, and carry an angle steel or laminated wood frame and special "Crown" body. The 40 by 1 1-8-inch Sarven patent wheels are equipped with solid rubber tires. Maximum speed is declared to be 30 miles an hour.

**Automatic Meshing Gear-set.**—Among the exhibits that attract the mechanical sharps is one that causes the man on the lookout for new things to stop and look it over. It is an automatically meshing gear-set, of which H. O. Fletcher, of Hyde Park, Mass., is the inventor. The model shown only



Where the Thomas Was Shown Under the Wistaria.



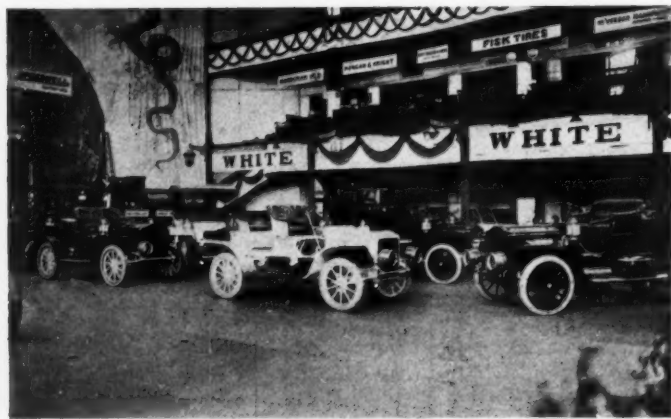
Looking Down from the Gallery, Where the Band Played, at the Exhibits on the Main Floor of the Big Auditorium.



Oldsmobiles Were Well Placed Near Main Entrance.

provides two speeds forward, but suffices to show the principle of the device, which consists of a double-faced jaw clutch, placed between a right and left-hand worm and corresponding to similar clutches on the speed pinions of the main shaft of the set. The sliding pinions are shifted in the usual manner, but it is impossible for the car to go ahead on a certain speed until the pinions representing it are fully in mesh, as the pinion engaged runs loosely on its shaft, but as soon as the revolving gear picks it up it moves toward the jaw clutch on a long-pitch worm until it engages and then becomes solid with the shaft. For the other speed, the worm is cut in the opposite direction. When disengaging the pinions are automatically removed away from the clutch.

**A New Shock Absorber Represented.**—"Cars are invariably suspended by 'leaf-springs' because the leaf-spring principle has proved to be the only principle having the strength to carry the weight, combined with the resiliency to absorb



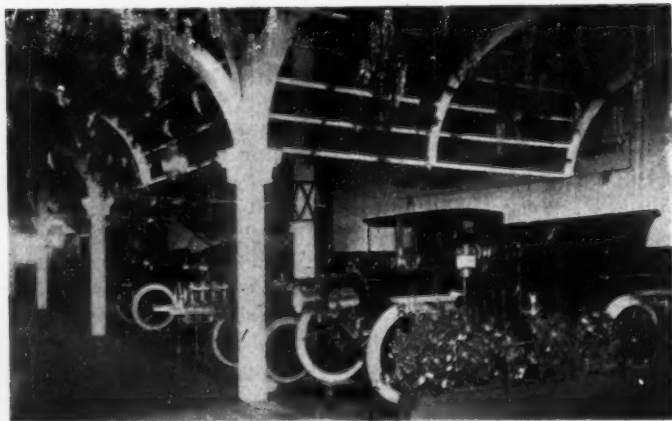
The White Steamer Line Was Imposing and Complete.



Studebakers, Reos and Premiers Were Neighbors.



A Warm, Spring Sun Lighted Up the Rambler Display.



The Air-cooled Franklins Had an Artistic Setting.

shocks," says the maker of the new Du-Ro shock absorber, of which Duncan Robinson, 89 State street, Boston, Mass., is the inventor and manufacturer. It consists of a stationary hub, rigidly attached to the car frame, and surrounded by a revoluble ring. A steel chain attached to one end of the ring, and partially encircling it, is attached at its other end to the axle or running gear of the car. Thus any movement of the car frame pulls on the chain and turns the ring, the movement of the latter being resisted by a set of powerful leaf springs. A shock turns the ring against the progressive resistance of the springs until the force of the shock is equalized by the power of the resistance, thus quietly absorbing the disturbance. This progressive resistance begins at nothing and increases as needed by calling into play more and more leaves, and as the strength of the latter has been designed to be greatly in excess of any possible demand, there is a proper amount of resistance to counterbalance every shock, whether small or great.

**Sterling Alternating Ignition Device.**—When a direct current passes through the platinum contacts of a vibrator coil continuously in one direction, the same action takes place as is noticed in the carbons of an ordinary arc light, the positive being disintegrated and the resultant material being transferred to the negative, causing a point to form on the latter and a crater on the former, and when the points get in this condition they are said to be pitted. They then no longer give good service. The Sterling alternating ignition device has been brought out to overcome this, and, according to its makers, the Sterling Alternating Ignition Company, Binghamton, N. Y., its use permits of enjoying all the advantages of the battery type of high-tension ignition, without any of its drawbacks. For a four-cylinder engine, a standard timer with four stationary contacts is employed in connection with four simple coils having neither vibrators nor condensers. Included in these connections are four normally closed switches—one at each coil, there being a common condenser for all the coils. It is connected across the single vibrator employed and the alternating current through the latter leaves the contacts smooth and clean. Only one adjustment is necessary on the system, while it is possible to stow the coils anywhere on the car. Individual button switches are provided for testing purposes. The same concern is showing the Sterling double contact timer, which is of the roller type, but departs from the usual practice by employing two rollers set opposite each other, thus balancing the strain on the shaft and reducing wear to a minimum. To supply the demand for a cheaper timer, the same firm shows the "M. I. P.," which is also of the roller type.

**Bullet-proof Cloth Among Novelties.**—It may appear at first sight that bullet-proof cloth, while not a novelty frequently seen at automobile shows, would be rather out of place at any function of the kind. But a little consideration makes it plain that a cloth which will stop a bullet will also stop the obnoxious horseshoe nail, the piece of jagged glass and the thousand and one other things that find their way into the pneumatic tires in the course of service. The cloth is the invention of Casimir Zeglen, and is manufactured by the Zeglen Bullet-proof Cloth Company, South Bend, Ind. It is made of raw silk woven in a special manner, and is made in various thicknesses, the entire substance being merely a textile fabric. This material has been applied to the lining of an automobile outer shoe in the same manner in which the ordinary canvas fabric is employed. The most severe tests failed to puncture the tires, the attack being made in one case by means of two boards placed about 60 feet apart and filled with long French brads, one-third of which were bent to point toward the approaching tire, one-third standing upright, and the remainder leaning away. Half a dozen broken bottles were also strewn on the road and

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Though the Racing Was Decidedly Meager, the Onlookers Were More Numerous Than Ever Before.

## FLORIDA'S MEET SUPPLIED MORE RECORDS THAN RACES

By JOHN C. WETMORE.

ORMOND, FLA., March 7.—Thanks to the gallant doings of the little guard of skirmishers that the Automobile Club of America had succeeded in gathering to preserve the continuity of the racing tournaments on Florida's far-famed sands, the sixth annual Ormond-Daytona meet in the wind-up was not only saved from utter failure, but there was even revived some of the glories of the past through several noteworthy and successful assaults on Father Time.

During the concluding two days of the meet, the fickle goddess of fortune came to Florida's rescue with favoring winds and a fast beach, and a healing touch to the infirmities that earlier in the week had crippled several of the beach invaders. As a result of their four days of campaigning, the coterie of contenders carried away with them quite a full bag of new records for the season's advertising.

A notable achievement of the meet was Emanuel Cedrino's 300-mile run on Thursday with the 60-horsepower Fiat Cyclone, shod with Continentals. In this race the Italian-American covered the three centuries in 3 h. 53 min. 44 sec., an average of 77.02 miles an hour, as against the record average of 70.8 miles, scored by Nazzaro in the last Grand Prix run. Incidentally, en route, Cedrino put up 3 h. 16 min.

48 2-5 sec. as a new figure for 250 miles, gaining this added honor. The one long-distance record for the beach—that for the previous maximum of Florida racing, 100-miles in 1 h. 15 min. 40 2-5 sec., scored by Clifford Earp and a Napier in 1906—was supplanted by 1 h. 12 min. 56 1-5 sec., thanks to Maurice Bernin and his speedy 60-horsepower Renault, wearing Michelines, a performance whose merit may be judged by the average of 82.26 miles per hour it showed.

Records for the beach were established for 125 and 150 miles by Louis J. Bergdoll, of Philadelphia, with his 60-horsepower Benz stock car, Continental tired. On Tuesday, the opening day, in the 150-mile stock car race, he scored 2 h. 10 min. 38 sec. for the 125 miles and 2 h. 50 min. 33 sec. for the 150 miles. The following day, in the invitation race for amateur drivers, he cut the 125-mile figures to 1 h. 52 min. 30 2-5 sec., an average of 66.36 miles per hour.

The members of the Automobile Club of America contest committee, which conducted the races, expressed themselves as satisfied with the outcome of the meet, and not at all regretful at having put it through with the limited field of entries. The paucity of the contenders was attributed to unfavorable trade and financial conditions; the



Official Stand, Where the Notables of Automobiling Gathered.

Among those to be seen in the picture, starting from the left, are Committeeman A. H. Whiting, A. C. A.; Vice-president George E. Sebring, of the F. E. C. A. A.; Harlan W. Whipple, ex-president of the A. A. A.; Major J. B. Foote (in the foreground), president of the F. E. C. A. A.; S. B. Stevens, of Rome, N. Y.; Referee Robert Lee Morrell (at telephone); Committeeman A. L. Riker, and Timer S. M. Butler.

promotion of another meet next year is favored in club and trade circles.

Among the racing fans in attendance, the opinion was unanimous that the substitution of long for short-distance racing on the beach was a wise innovation. That interest in the Florida races is unabated with the general public was proved by the Ormond Hotel being crowded, despite a poor season and no perceptible diminution in the crowds on the beach, at least early in the week, being noticeable. How great an influence on the hotel business this racing has had may be judged from the fact that the first year of the tournament, in 1903, the January house count at Ormond was 1,200; that it rose to 3,000 in 1904, and to 5,000 in 1905, the banner year, and that the present little meet enabled the hotel to beat the record of a previous year's successful corresponding week.

#### What Happened the Opening Day.

The racing began on Tuesday with the annual 100-mile run for the Minneapolis cup. The course was a 12 1-2-mile stretch, at Daytona, furnishing a 25-mile circuit with eight turns in all. Three cars faced Starter Wagner: Harry Levey's 120-horsepower Hotchkiss, which Elliot F. Shepard drove in the last Vanderbilt Cup race, piloted by Harry B. Shefts; E. Rand Hollander's 60-horsepower Fiat Cyclone, a middle-weight racer equipped with the engine of last year's German Emperor car, driven by Emanuel Cedrino, and W. Gould Brokaw's 120-horsepower front-drive Christie, which Walter Christie built and raced in last year's French Grand Prix, and which later captured a mile record of 35 seconds on Atlantic City's beach, with E. B. Blakely at the wheel.

The Hotchkiss was first away, but stopped in a furlong with a slipping clutch, the Fiat taking the lead and reaching the turn at the Inlet in 5:58. Then its troubles began with losing one of its light front wheel racing tires, which came off and had to be replaced, only to be lost again. Cedrino reached the clubhouse (20 miles) in 15:25, running on a bare rim, just as Earp had done two years before in the same race. A second tire was put on, only to be again lost. From this point Cedrino continued on three tires and a rim. In the mean time the luckless Christie "Big Bear" had broken a valve and been put out of the race, and the Hotchkiss had mended its clutch after a long delay and again taken up the running. The score by laps tells the story of the race.

Driver.	Car.	25 miles.	50 miles.	75 miles.	100 miles.
Cedrino (Flat)		26:39 4-5	64:05	85:05	110:20
Shefts (Hotchkiss)		42:37	77:51		



Mr. and Mrs. Paul Lacroix and Cedrino

The Hotchkiss completed 75 miles, but was not timed after being scored at 50 miles. Cedrino had lost 30 minutes in all in replacing tires. Incidentally, Cedrino won the \$100 prize offered by Joseph M. Gilbert for a victory on Continental tires and demountable rims.

Four cars were at once started in the 150 stock car race: Louis J. Bergdoll, 60-horsepower Benz; James Laughlin, 3rd, 40-horsepower Cleveland; J. Carey, 70-horsepower Thomas; and E. W. Howard, in W. Gould Brokaw's 40-horsepower Allen-Kingston. The contest quickly became a runaway for Bergdoll, with Laughlin a hopeless pursuer for 100 miles, the Allen-Kingston being towed back from

the inlet with a melted bearing, and the Thomas quitting when it lost a tire.

The Benz cantered over the course an easy winner, completing the laps as follows: 25 miles, 25:15; 50 miles, 61:02; 75 miles, 85:32; 100 miles, 107:31; 125 miles, 130:38; 150 miles, 2 h. 40 min. 50 sec., establishing records for the last two distances. The Cleveland's score was: 25 miles, 46:32; 50 miles, 77:24; 75 miles, 109:37; 100 miles, 2 h. 26 min. 46 sec. The Thomas got as far as the 25-mile post in 43:06.

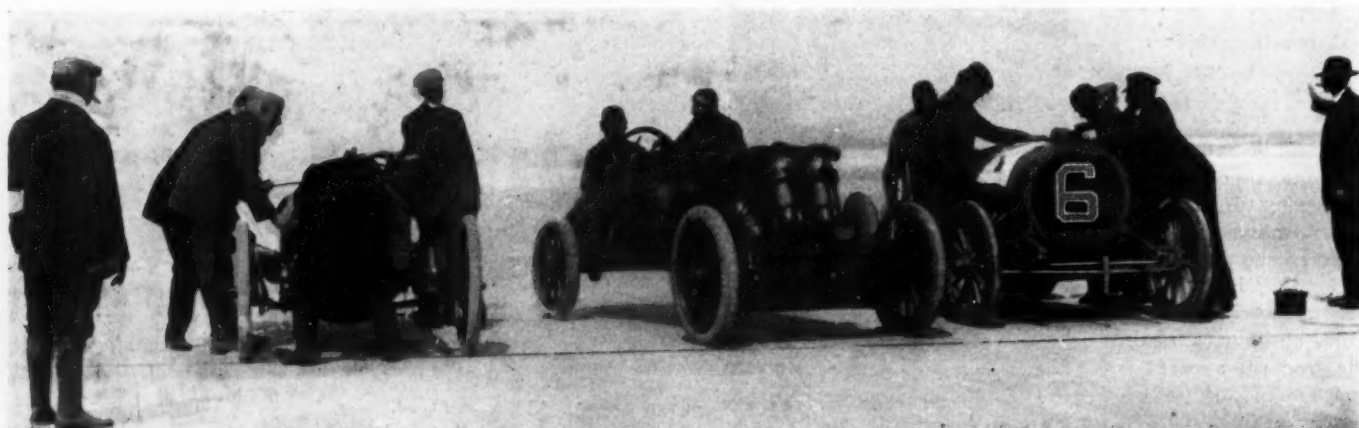
#### The Amateur Race on Wednesday.

The condition of the beach on Wednesday, though somewhat improved, was such that the committee decided to stick to the 12 1-2-mile Daytona stretch for the running of the 125-mile amateur invitation race. S. B. Stevens, a veteran Ormond Beach pilot, was at the wheel of the Fiat Cyclone; W. Gould Brokaw's "Little Christie" of 60 horsepower was entrusted to R. G. Kelsey, and Louis J. Bergdoll was again on hand with his Benz "60."

Again there was a tale to tell of shattered hopes, and one of these races that are not always to the swift; for, after running with a safe lead for 50 miles, Stevens pulled up limping at the clubhouse (70 miles in 58:18) with a broken rocker arm. The missing part was not at hand, and 29:05 was lost in getting a replacement from the garage at Ormond. With such a handicap, so speedy a car as the Benz was not to be caught. Its owner, Mr. Bergdoll, and the car were in fine form, and won easily, cutting off a big slice of the previous day's 125-mile record figures, with the following score:

Driver.	Car.	25 miles.	50 miles.	75 miles.	100 miles.	125 miles.
Bergdoll	Benz	22:54	46:41	67:49	90:25	113:30 2-5
Stevens	Fiat	20:40	41:37	70:05		
Kelsey	Christie	37:07	65:46			

Stevens made a game but hopeless chase of it, reaching the 95-mile post in 1:54:28, when he stopped.



Referee Morrell Overseeing a Start Involving the Fiat, Christie, and Hotchkiss.



### A 300-mile World's Record.

With the third day's racing on Thursday came the redemption of the meet at last through an excellent contest in which three of the four contenders survived to the finish. The world's average speed for an international cup distance was broken, and the famous stretch of Florida beach sand took on once more the unrivaled racing shape that has given it fame as the fastest motor car race course on earth. In this, the chief event of the tournament, the 256-mile run for the Club cup, for the first time during the tournament those worthy Italian and French rivals met; Bernin having at last repaired the damage done the engine of Paul Lacroix's new 60-horsepower Renault racer through the breaking of an oil-feed in preliminary practice. Cedrino, as a matter of course, was at the wheel of the Fiat Cyclone. On behalf of the United States, two Christies essayed to go against the foreigners: the 120-horsepower "Big Bear," piloted by E. B. Blakely, and the "Little Christie" 60, driven by R. G. Kelsey. The race was run over the entire beach course of 16 miles, in eight circuits of 32 miles each. The race was originally scheduled for 288 miles, but through fear that the incoming tide might rise too high before that point was reached, it was agreed before the start to reduce the distance to 256 miles.



Cedrino and the Continental-tired Cyclone.

As may be imagined, there was eager rubbernecking for the one that should first be sighted returning from the Inlet. It proved to be Bernin, who completed the 20 miles in 15:59, followed by Kelsey in 18:58 and Cedrino in 19:36. The Fiat had stopped five minutes to replace an igniter. The first lap was completed with Bernin still in the lead, pursued by Cedrino, who had passed Kelsey.

In the next lap, tire troubles befell the Renault, which was the beginning of its final undoing. Thrice did Bernin have to stop, twice to put on a new rim and once to make a complete change of shoe and tube.

The 100-mile post was reached by Cedrino in 81:39 3-5; by Bernin in 97:33 3-5, and by Kelsey in 98:27. All three thus qualified for the sprints on the following day.

For 84 miles the race was fairly close between Cedrino and Bernin, but after that two stops for replacements made the Renault's chase of the Fiat almost hopeless, though the Frenchman persevered to the end.

Cedrino finished in whirlwind style, not having had to stop to change his tires; his time for the 256 miles being 3 h. 21 min. 27-2-5 sec. The final brush for second place between Kelsey and Bernin was exciting, but a quarter of a mile separating them at the tape. The American finished twelve seconds ahead of the Frenchman. The big Christie had sucked a bit of the porcelain plug into the cylinder and was



Bernin and Renault Which Won the 100-mile Match.

early out of the running, though Blakely struggled on for two circuits before quitting. The score:

Driver.	Car.	32 miles.	128 miles.	256 miles.
Cedrino.....	Fiat .....	29:16	103:11	201:27 4-5
Kelsey.....	Christie .....	31:15	123:55	246:26
Bernin.....	Renault .....	25:37	117:40	246:38

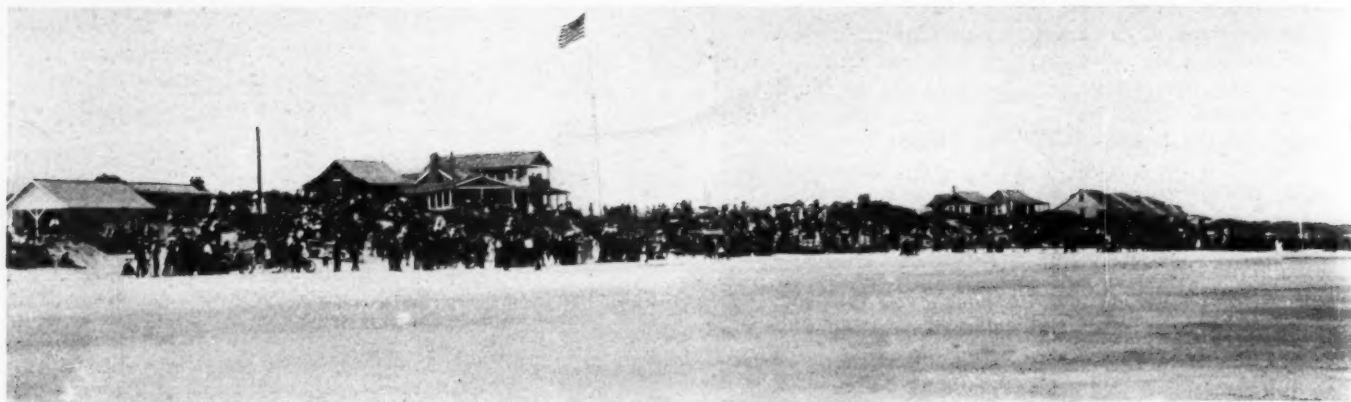
Cedrino covered 250 miles in 3 h. 16 min. 48 3-5 sec. It had been arranged during the progress of the race that the Fiat should continue for new figures up to 300 miles, which distance was made in 3 h. 53 min. 44 sec.

### Century and Sprint Records Go.

For the get-away day of the meet, Florida's favorite saint had favored the motorists with a fast beach and a stiff wind



Louis J. Bergdoll and Benz Big Cup Winner.



In Front of the Clubhouse at Daytona, Where Thousands Gathered Expectantly and Departed Disappointed.

from the South for the record trials of Friday. Four cars had qualified for the sprints by averages of 60 miles an hour or better for 100 miles or more.

All faced the electrically-operated tape. They were: Bernin, Renault; Cedrino, Fiat; Bergdoll, Benz; and Kelsey, 60-horsepower Christie. After the other contestants had had their fling at Father Time, Cedrino made his run with the Fiat. The result was a record of :35. Though it does not approach, of course, the :28 1-5 made by Marriott with the Stanley steamer, or the :30 3-5 scored by Demogeot on this beach in 1906 with the 200-horsepower Darracq, or the :32 3-5 made by H. L. Bowden with the 120-horsepower overweight Mercedes in 1905, it has only been beaten by one long-distance gasoline car, the 80-horsepower Napier, which Arthur MacDonald drove in :34 2-5 in 1905. Walter Christie tied it with :35 in the *Great Bear* at Atlantic City in 1905. As before stated, however, Cedrino sets up a new middleweight record in place of the :40 3-5 scored by Guy Vaughan in the 80-horsepower Darracq in 1906.

Bernin with the Renault was content with :39 1-5, with long-distance racing equipment. R. G. Kelsey made :42 4-5 twice in succession with the Little Christie, and L. J. Bergdoll scored :45 4-5 and :45 3-5 with the Benz, G. P. Parker driving.

After the racing was all over, David Bruce Brown, a New York schoolboy, who had run away to attend the meet and had made friends with Cedrino, begged to be allowed to try for the amateur record of :39 held by W. K. Vanderbilt, Jr., since 1904 with a 90-horsepower Mercedes. The official consulted, and set up the wire traps for him. The youngster took the wheel of the Fiat Cyclone and captured the amateur record with a mile run in :35 3-5.

Honors were made fairly easy between the rival foreign cracks and tire makers by the outcome of a 100-mile match race between the Renault, driven by Bernin, and the Fiat Cyclone, with S. B. Stevens at the wheel. The wager was \$200 a side. This time Michelin tires did themselves proud and made a strenuous century without being touched. The reliable Renault ran without a skip, won the match hands down, and at the end had gathered to itself a new world's record for the distance of 1:12:56 1-5, supplanting Clifford Earp's 1:15:40 2-5 made with the Napier in the race for the Minneapolis cup in 1906. The score tells the tale in part:

Driver.	Car.	24 miles.	56 miles.	88 miles.	100 miles.
Bernin.....	Renault	17:42	41:02	64:10	72:56 1-5
Stevens.....	Fiat	20:42	44:02	75:02	83:59

The Renault led from start to finish. At four miles Stevens stopped at the stand, thinking there was trouble with his engine, found none, and continued. Further down the beach, however, he lost five minutes in replacing an igniter. The Fiat lost some of its speed of the day before and Cedrino attributed it to the big sprockets put on for the record trials and the feeding of too much gasoline. The attempt to break

the stiff wind with the big sprockets for a long distance slowed him.

Most of the officials of the meet left for the North Friday night, but all of the newspaper men, photographers, and several tradesmen stayed behind for the Savannah meet.

#### One of the Disastrous Incidents of the Meet.

DAYTONA, FLA., March 8.—There was some talk of a damage suit involving James Laughlin, 3d, of Pittsburgh, who loaned his Cleveland car, and R. G. Kelsey, of New York, the man to whom he loaned it. The loan was on Thursday night, and Mr. Kelsey, driving up the beach at high speed, because of the fog, ran into the wreck of the old ship that has rested in the sands for many years. Twenty-four hours later the car was dug out at low tide. The difficulty has been adjusted by Mr. Kelsey agreeing to have Mr. Laughlin's car rebuilt and made as good as new. This car is the Jacksonville-Miami pathfinder.

#### Cadillacs Lead at First Jacksonville-Miami Control.

ORMOND, FLA., March 10.—At 6:45 to-day the first of the contestants in the Jacksonville-Miami run arrived here, having covered 84 miles. The leading Cadillac had a second Cadillac in tow, disabled through a collision with a tree. The other starters, Peerless and Maxwell, have not reported.

#### DAYBREAK START FOR BRIARCLIFF RACE.

The start of the Briarcliff Cup race for stock chassis has been fixed at 4:45 a. m. on Friday, April 24, the machines being sent away from a point opposite the Briarcliff Manor. The grandstand privileges have been sold outright, the money so obtained, together with the entry fees, being sufficient, according to the committee, to ensure financial success.



Old Wreck Which Wrecked the Cleveland.



## THE PERFECTION OF AUTOMOBILE IGNITION\*

By J. O. HEINZE, MEMBER SOCIETY OF AUTOMOBILE ENGINEERS.

WHAT has been troubling us more than anything else about an automobile and its engine is to perfect an ignition system that shall be accurate and positive. Daimler used in his early engines a separate iron chamber which was attached to the cylinder and opening into it, which was kept very hot by an outside flame. Into this chamber was injected a spray of gas, or crude oil, which ignited by coming in contact with the hot walls. Later on he employed a small closed platinum tube inserted and opening into the cylinder for the same purpose. The great objection to this system was the inability to definitely fix the moment of ignition in relation to the position of the piston in the cylinder and to insure at all times a positive ignition for every explosion stroke; also, in not being able to make the ignition rapid enough to propel engines at high speed in order to increase the power of the engine without increasing its weight. Otto used another form of ignition, differing from Daimler's, employing a separate gas flame burning near an opening in a slide valve, which carried momentarily a part of the flame into an opening in the cylinder, but he experienced the same difficulties that Daimler did.

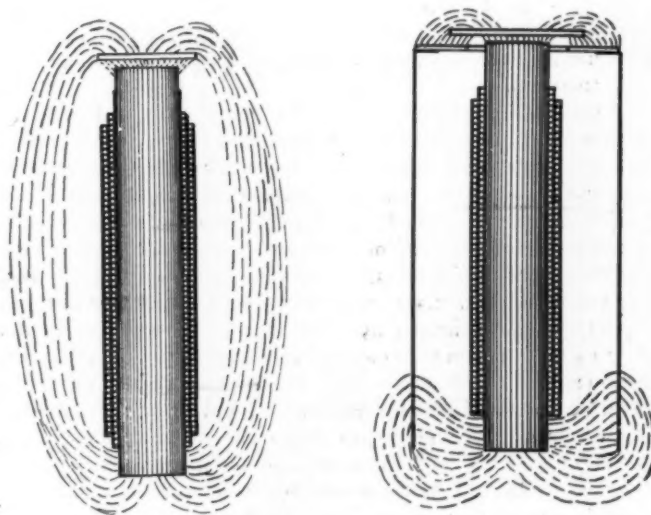
My topic is the present-day electrical ignition and the various systems employed, also their mechanical construction and relative efficiency. I do not wish to refer to any one particular make of ignition apparatus, for I believe they all have merits, and the fact that much of our apparatus in the past did not prove efficient was because the various makers of ignition apparatus were not thoroughly equipped with instruments for standardizing their work. It was not because they did not see the wisdom of thus making absolute measurements of all the elements entering into the design of ignition apparatus, but such instruments for making measurements of this kind had not been designed and we were all, therefore, laboring under difficulties and guessing at results. Also, many of our past failures in the efficiency of apparatus were not due so much to the principles involved as they were to poor workmanship and general design, not using the right kind of material nor the proper proportions to give strength and durability.

### Automobile Requirements Were New.

When I first began the manufacture of ignition apparatus, and particularly spark coils, some three years ago, I entered the field with some fifteen years of experience in making spark coils producing from one-half inch to fifty-inch sparks in length, and naturally thought I was well equipped for making coils for automobiles, but I soon discovered that there are tricks to all trades, and while I was able to easily make a coil to produce a half-inch spark, still it would not do the work satisfactorily, for it would not respond to high engine speeds; nor was the explosion very strong, and the battery would discharge in a very short time, due to a large current consumption and many other defects, reducing the life and durability of the apparatus, owing to the conditions to which they were subjected in an automobile, such as vibration, heat and cold, and one other element, the desire of every automobile driver to locate all his troubles in the ignition apparatus. If his valves did not seat properly and he had no compression the spark coil was at fault. If his spark plugs got sooted by too much oil and carbon, it was the fault of the coil. If the gasoline pipe got plugged and the carbureter did not get any gasoline, he would try to find the fault in the coil.

Having briefly rehearsed a little history familiar to you all, I will now state some of my observations and experiences during the past few years. We all know that what is needed is a very hot spark, of great frequency, positive, and of a certain length, to penetrate the gap in the spark plug which is generally from

1-64 to 1-32 inch. We also know that with higher compression in the cylinder the spark should be longer and of a higher voltage, or, to be more precise, it requires a good 1-2 inch spark to jump a 1-32 inch gap at 90 pounds compression, and only a 1-4 inch spark at 60 pounds. The heat of the spark depends entirely upon the watt energy consumed in the arc of the gap, or, in other words, the sum of the voltage multiplied by the amperage passing through and across the spark gap. But since the voltage across the spark gap becomes practically nothing after the resistance of the gap is broken down and the arc formed, the amperage then depends entirely upon the ohmic resistance of the secondary of the coil and the total energy induced in the secondary, and this energy again depends upon the mass and quality of iron in the primary, the ampere turns on the primary core, producing a certain total magnetic flux and the rapidity with which the primary current is interrupted, and from this analysis it would appear that the larger the iron core, or the larger the coil, the hotter the spark to be obtained. Quite true,



Figs. 1 and 2.—Showing method of closing magnetic circuit.

but we must figure on the frequency of the spark necessary to operate an engine at high speeds, and here we meet with a limitation in the size of spark coils practical for gas engines. We find that we have got to magnetize and demagnetize the primary iron core to produce an induced current in the secondary and as the iron core and its vibrator have a fixed time lag, depending upon the mass of iron in the core, the mass of the vibrator and the length and tension of the vibrator spring, we can therefore produce only a certain number of sparks per minute in a certain size coil, as a certain frequency is necessary for a definite engine speed. This frequency would then determine the size of the coil, and the size of the coil determines the total electrical energy which can be produced by it in the heat of the spark. With a magneto, however, we have no limitations, for, being practically a dynamo-electric generator, the larger we make the machine the more energy we can get in producing a longer spark and of greater amperage, and where a magneto is of the low-tension type, we have practically no lag, and could produce sparks far more rapidly than is necessary for present-day engine speeds. Magnets which generate a low-tension current (mechanically interrupted) passing through the primary of a coil and stepping up the voltage by the secondary, have only the magnetic lag of the primary core and the armature core to contend with, and this arrangement would make possible far

\*Paper read before the Society of Automobile Engineers at New York.

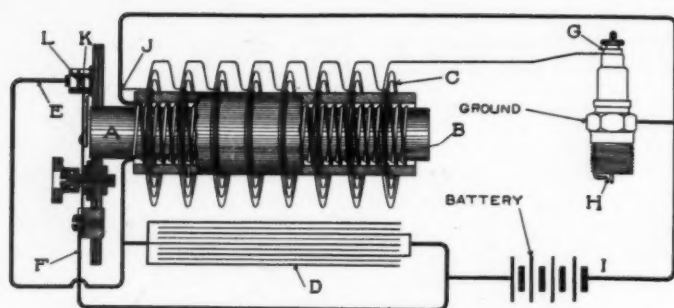


Fig. 3.—Details of spark coil and connections.

greater engine speeds than would be mechanically safe. So I will have to confess from my experience that a spark coil using a vibrator operated by either a battery, magneto, or small electrical generator will never produce the same results, or efficiency, produced by a magneto operating through a mechanical electrical make-and-break in the cylinder or on the magneto and stepping up the voltage for jump spark ignition through a non-vibrating induction coil.

#### Ingenious Instruments for Coil Testing.

In order to demonstrate more clearly the principles involved in spark coils, and the means of arriving at standard results of efficiency, I have designed several instruments for making absolute measurements for the purpose of testing the efficiency of various kinds of coils and secondary windings, comparing them with the results obtained with magnetos. Fig. 1 shows a primary iron core commonly employed in spark coils having wound consecutively upon it two layers of primary winding, through which pass the battery current, producing magnetic lines of force which pass through the iron core, and from one end of the core through space to the other end of core, so completing the magnetic circuit. Fig. 2 shows another form of primary core and winding having plates of iron on each side of core for the purpose of more thoroughly completing the magnetic circuit by iron to strengthen the magnetic field and to get a greater number of lines of force. And as the current induced in the secondary depends upon the strength of this magnetic field, the stronger we make it the longer the spark and the greater the amperage produced from it without consuming any more current. This form of construction is used in the Heinze type of coil.

In Fig. 3 we have the general arrangement of a spark coil; *A* is the iron core, *B* is the primary winding, *C* is the secondary winding which consists of some 20,000 turns, *D* is the condenser consisting of layers of tin-foil insulated from each other by layers or sheets of mica or paraffined paper, and which is connected across the vibrator at *E* and *F*, one end of the secondary winding being connected to the spark plug at *G*, completing its circuit after jumping the gap *H* in the plug, and passing to the ground connection formed by the cylinder to one end of the battery circuit *I* and through the battery to the primary winding to which the other end of the secondary is connected at *J*. When the primary current passes around the primary winding it magnetizes the iron core; this then attracts the small iron plate of the vibrator, and in so doing breaks the electric current at the contacts *K* and *L* and as the current ceases flowing around the iron core it quickly demagnetizes and this rapid decrease and increase of the intensity of the magnetic field is what causes a current to be induced in the secondary winding. The voltage or spark length produced by the secondary depends entirely on the number of turns of wire in series and the total magnetic flux and its rate of fluctuation from minimum to maximum in intensity. The condenser *D* is for the purpose of quickly absorbing the back rush of current from the primary at the moment of break and thereby eliminating the sparking at the contacts. Unless the condenser is properly proportioned in its relation to the primary winding, mass of iron and battery current, excessive sparking will be the result with

consequent pitting of the contacts. It therefore becomes apparent that every element, such as the microfarad capacity of the condenser and the magnetic qualities of the iron should be carefully tested and standardized in order to get uniform and efficient results. For the purpose of testing the magnetic quality of the iron and its ability to quickly magnetize and demagnetize I designed the instrument shown in Fig. 4, known as a *Hysteresis Tester*, which consists of an iron core, *A*, *B*, *C*, *D*, *E*, *F*, of U-shape. On the cores *A*, *B*, and *E*, *F* are wound small coils *G* and *H*, and between the pole-pieces *I* and *J* is mounted a small circular iron core. Around this core moves a small coil of wire pivotally mounted, to which is fixed an indicating needle *L*, moving over a graduated scale *K*. Small non-magnetic clock springs are secured to the coil pivot and keep the needle at zero. A direct current from a battery producing a certain number of milli-amperes passes through the moving coil on its pivot and through the coils *G* and *H* in series. The iron core *M* of the spark coils to be tested is revolvably mounted between the cores *A* and *F* and completes the magnetic circuit. If we now pass a certain number of milli-amperes through the coils *G* and *H* and the pivot coil, the iron core to be tested remaining stationary in the position shown in the diagram, we then get a certain deflection of the needle *L* over the dial *K*. If we now rotate the iron core *M* about its axis at a fixed number of revolutions, we then get a new reading on the scale. The magnetism generated by the current in coils *G* and *H* and passing through the rotating iron core in the direction as indicated by the dotted line, reverses in direction through the rotating core twice during every revolution. If we now rotate this core 2,000 revolutions per minute we would get 4,000 reversals of magnetism. The number of degrees of deflection of the needle on the scale depends upon the strength of the magnetic field, and if the iron core does not readily demagnetize and magnetize during its revolutions it would naturally reduce the total strength of the magnetic field and the indicator would show a small reading on the scale. So by this method we can show absolutely whether an iron core is susceptible to rapid magnetic changes necessary

for producing a coil to give a great frequency of sparks per minute, and for the purpose of seeing that our iron is twice alike, for if it is not repeated, annealing will usually make it so.

To test the frequency of the sparks from a coil I designed the instruments shown in Fig. 5, which consists of a rotating needle *A* on its axis *B*, within a graduated ring *C*, of a known diameter and divisions. One end of the secondary *D* of the coil connects to the rotating needle *A*, and the other end of the secondary *E* connects to the ring *C*. The needle *A*, at its point *F*, is sep-

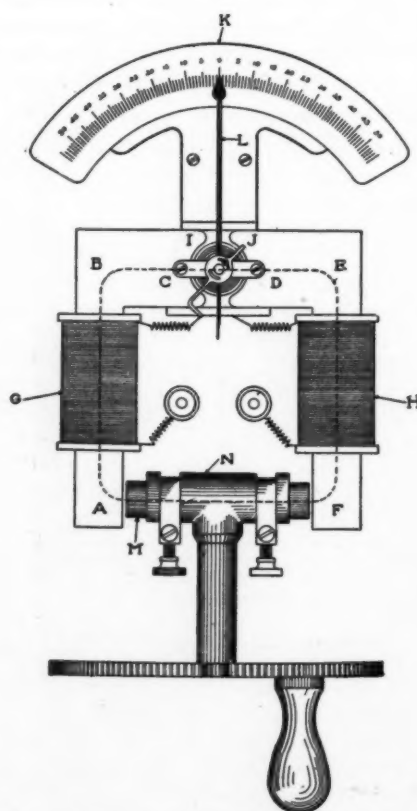


Fig. 4.—The Heinze hysteresis tester.



arated 1-4 inch from the ring *C*, so that sparks leap across this gap from the point *F* to the ring. If we now rotate the needle a certain number of revolutions and we have a certain circumference in the ring, by multiplying the number of the sparks per inch times the number of inches in the circumference of the ring, times the number of revolutions of the needle, we then get the number of sparks per minute. With this instrument we can easily test different makes of coils having various kind of vibrators, and can also learn the effect on the number of sparks produced per minute by varying the tension of the vibrator as well as determining the amount of current consumed, thus arriving at the best form of construction to give the greatest efficiency.

Fig. 6 is an instrument for measuring the approximate temperature of the spark of different spark coils and magnetos.

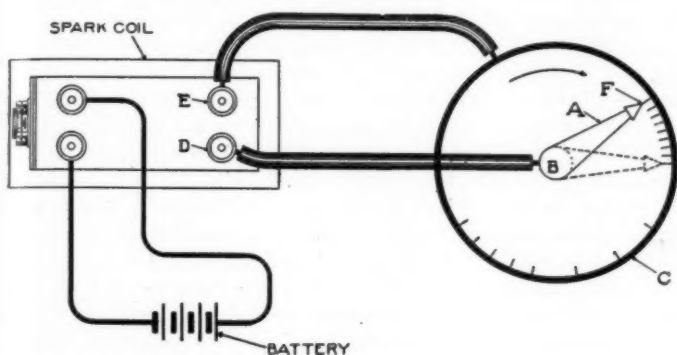


Fig. 5.—Heinze instrument for testing frequency of sparking.

This is not determined in Fahrenheit degrees, but in heat units. The instrument is designed on the principle of utilizing the expansive effect of a hot wire to move an indicator needle over a graduated dial, and is constructed as follows: A fine copper wire is stretched between the metal contact posts, *A* and *B*, the tension of this wire being regulated by the adjusting screws *K* and *K'*. To the center of the wire at *C* is fastened a small copper stud, which comes to within 1-32 inch of the metal plate *D*. The secondary terminals of the spark-coil are connected to the binding posts *L* and *M*, completing its electrical circuit through the copper wire *N*, across the gap at *C*, to plate *D*. If a certain amount of primary current, determined by an accurate ammeter, is passed through the coil, we will get a continuous secondary spark between the stud *C* and the plate *D*. This spark heats the stud and in turn heats the copper wire which expands and causes an elongation in the direction of the arrow *E*. To the center of the wire and the stud *C* is also fastened a small wire, to the end of which is fastened a silk thread, wound around a pivot and kept taut by a small spring *H*. To the pivot is fastened an indicator needle moving over a dial *I* in the direction of the arrow *G*, when the wire is expanding, and in the opposite direction when contracting, giving us a certain reading depending entirely upon the temperature produced in the copper wire by the heat of the spark at the gap *C*. When the rate of cooling, or radiation, of the wire equals the production of heat from the secondary current, the needle will then come to a stop and no fixed time measurement is necessary. In order to test various coils, it is first necessary to see that they all consume the same amount of primary current at the same voltage. When comparing the spark from a magneto with a coil, I found that the magneto produced from 500 to 1,000 per cent. more heat units in the spark gap of the plug, over a coil, so the importance of having an instrument making absolute measurements possible, thereby eliminating the personal factor, may be appreciated.

Fig. 7 is an instrument for measuring the amount of lag in the secondary spark from the moment the primary current is closed, and my object in designing this instrument was to clear up a prevailing idea in the minds of many automobile operators that by advancing the timer an early ignition is produced when

the piston is still coming up. From the many experiments which I made in ignition timing, I found that it was impossible to advance the spark more than 10 degrees at an engine speed of 1,000 r.p.m. without observing a slight decrease in power if the advance was carried further, the engine would gradually come to a stop, or kick back. The higher the engine speed the more the spark can be advanced, but no such advance is possible as would be indicated by the position of a timer apparently capable

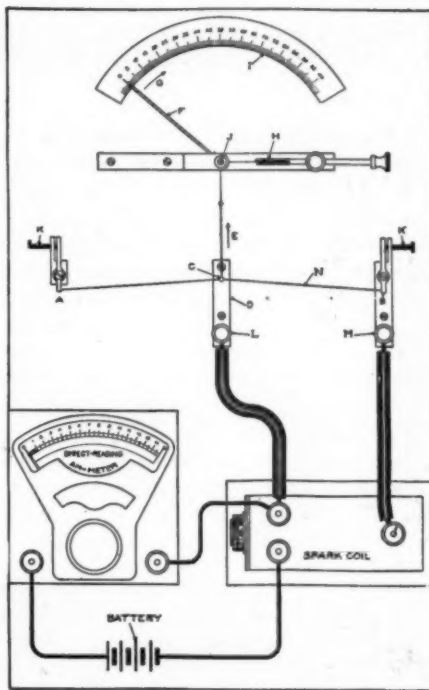
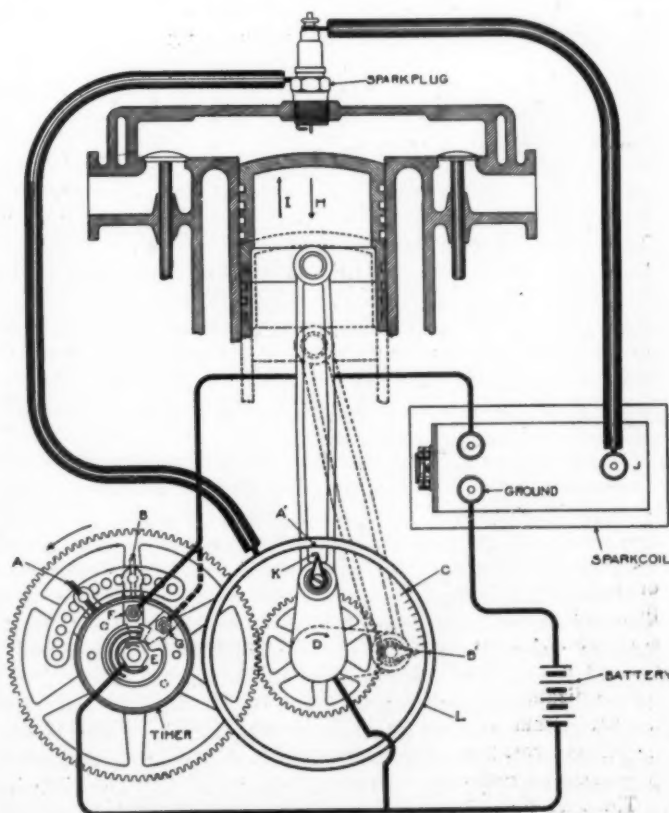


Fig. 6.—Heinze hot wire pyrometer.

of a movement of 90 degrees, or more. This great amount of advance of the timer is necessary to overcome the enormous lag in vibrating spark-coils, but no such advance is possible with a magneto, for the secondary spark takes place immediately at the moment of the primary current interruption. The only lag present is entirely magnetic, and there is none in the contact, for the mechanically-operated contact breaker in a magneto increases in speed with the engine, but the vibrator of a coil has a fixed lag, or in other words takes just as long to start vibrating.

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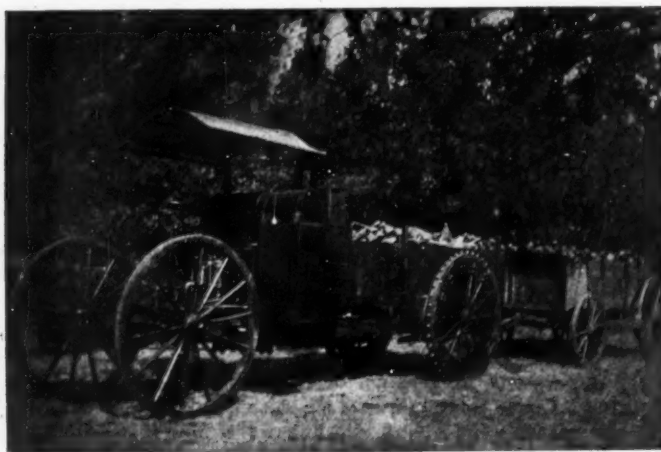


**Fig. 7.—Details of Heinze analogue for testing ignition advance.**

## REMARKABLE WORK OF BACKWOODS INVENTOR

By VICTOR LOUGHEED.

It has not often been the case that any considerable progress in automobile design has come from small and isolated communities, as the result of independent individual effort, but to all rules there are exceptions. Though the automobile has been chiefly regarded and is for the most part a product of the cities and more populous areas of civilization, it is none the less a fact that in the development of a mechanism having all terra firma for its field of usefulness there may be much of merit in the ideas of the man who, spurred by a knowledge of exceptionally demanding local conditions, brings out something specially adapted to cope with them. Such has been the genesis of the really remarkable automobile truck illustrated herewith, which, besides being a demonstrated success, is exceptionally noteworthy in having been entirely designed and constructed by a country blacksmith, Arthur Mills, of Ione, Cal.—a small mining town almost as remote in point of accessibility from the populous



Blacksmith Arthur Mills' Ore-laden Automobile Train.

sections of the Pacific slope as it is from the motor building centers of the East.

Over fourteen years ago, it has developed, Mr. Mills first commenced pondering over the problem of mechanically-propelled vehicles for common roads, and almost as soon commenced the work that has eventually embodied his ideas in useful form. This period of work, carried on absolutely without more than local publicity, and without the sale of a machine—none having been placed on the market even yet—is worthy of note in that it classes Mr. Mills with the very pioneers of American automobile manufacture, with perhaps especial credit due because all that he has accomplished has been done in spite of the handicap entailed by a lack of facilities for the interchange of ideas with other workers in the same field.

Mr. Mills' work has been from the first consistently in the commercial vehicle field, a keen recognition of the fact only recently discovered by many others that in the last analysis the importance of the automobile must rest, not upon passing fads or fancies, but upon solid worth and utility. And, more even than this, it is to be said for Mr. Mills that he has achieved as successful a design, by strictly following his own ideas and methods, as many others have with the aid of all that a growing standardization and uniformity of practice could afford, for it is only within a very recent period indeed that the makers of trucks and commercial wagons generally have been able to supply machines really satisfactory from the customer's standpoint.

The first Mills truck is the one illustrated herewith, it being a 4,500-pound machine, capable of carrying a load of 3,300 pounds over the worst roads and hardest gradients, while at the

same time touring a heavy trailer with a 6,500-pound load. This machine was completed several years ago and was in more or less regular service until very recently, when it was torn down that some of its parts might be used in the model that followed it. As is suggested by the illustrations, anything from hay to ore can be hauled, these being the usual loads transported in the particular class of mountain service to which its activities have been confined. No great speed is attempted, the roads around Ione, Plymouth (where the truck was built) and other points in Amador county being of a character to discourage speed, even when the power for it is available. Both in the matter of heartbreaking hills and atrocious surfaces—deep sand and mud, broken rocks and boulders, and excessive grades—there probably are none worse in the country than these primitive highways of California's earliest mining district. Yet with only six horsepower, though of course at low speed, this original Mills truck time and again, month in and month out, proved its ability to go and keep going with heavy loads without ever becoming stalled. Trips to Sacramento and even to San Francisco, on occasion, proved a capacity for long distance travel.

In mechanical detail the features of principal interest probably are the enormous wheels, shod with regulation steel tires—except for the use of small knobs at intervals on the driving wheels to help traction, the wide tread, and the peculiar arrangement of the power plant. The wheels are 58 inches, the tread 62 inches, and the wheelbase 174 inches, making the machine about 20 feet long over all.

The motor was a 6-horsepower, two-cylinder vertical, four-cycle engine, located crosswise under the front seat and presenting no unusual features—both valves being mechanically operated, the cooling being by water, ignition by jump spark, etc. Speed changing was by a novel individual clutch system, with double bevel gears, affording two speeds forward and reverse. From the change-speed gear the drive was by single chain to the solid countershaft, the spur pinions on the ends of which drove directly into internal gears bolted on the insides of the rear wheels. No differential was used, releasing clutches between the internal gear rings and the wheels providing for automatic disengagement of one wheel by an inter-connection with the steering gear.

The steering gear is of the fifth-wheel pattern, controlled by a sector and pinion, the latter on the base of a vertical steering wheel. The reduction is so very great as to make irreversibility unnecessary and the fifth-wheel construction unobjectionable, it being remembered that the speed is very low.

Seven miles on a gallon of gasoline was the fuel consumption. Forty-five gallons were carried.

A new truck, containing parts of the old, has just been completed. It weighs 6,500 pounds and can carry five tons, besides drawing a trailer carrying five tons. The motor is a 14-horsepower of the same type as the first and the transmission is similar. The wheels are 48 inches front and 50 inches rear, the tread 62 inches and the wheelbase 150 inches. Thirty-five gallons of water are carried in a dummy bonnet, under which the gasoline tank also is located, and serves for cooling without any more radiating surface than is afforded by a few lengths of ordinary half-inch piping. A Schebler carburetor is used, and muffler cut-out is provided. Five miles per gallon is fuel use.

Throughout the vehicle a special point is made of the entire lack of special steels and materials. It is thus possible to effect repairs in any blacksmith's or wheelwright's shop, just as the entire machine has been hand built by Mr. Mills with the meager facilities. Despite this lack of alloy steels and the like, it is to be noted that the weight of the vehicle is not in excess of that of others of similar capacity.



## LETTERS INTERESTING AND INSTRUCTIVE

### WHAT IS THE AUTO'S FACTOR OF SAFETY?

Editor THE AUTOMOBILE:

[1,213.]—As I am considerably interested in the design of automobiles, I would be pleased if you would inform me what factor of safety is used in proportioning the different parts, such as side frames, driving shafts, transmission gears, and axles. I have been informed that the factor of safety depended upon the difference between the elastic limit and the ultimate tensile strength, but I do not know to what extent, and have no specific data for determining this, and have been unable to find any books containing such, so I would be pleased if you could help me out. Vanadium steel is what I was thinking of most especially.

Does "The Automobile Pocketbook," by E. W. Roberts, contain any such information as I have asked for?

Bison, Okla.

F. M. VANDERVOORT.

It would be impossible to state definitely exactly what factor of safety is generally allowed in the design of automobile parts, as this is something that naturally varies with each designer, but generally speaking, it may be said that it is very high; the maximum permissible consistent with keeping the weight within proper limits. In spite of this limiting factor, it is probably safe to say that the factor of safety of the automobile, as a whole, is very much higher than almost any other piece of machinery marketed generally, owing to the excellence of the materials employed. We have never heard of the factor of safety being made dependent upon the variation in the characteristics of the material, such as you state. In calculating the factor of safety in any given case, the maximum safe ordinary working load is taken as a basis, and the strength of the parts increased to make as great a margin of safety as is deemed to be necessary in view of the nature of the load to which the structure is to be subjected.

While Roberts does not make special reference to this subject under a separate heading, we think you will find it mentioned from time to time in connection with the design of various parts in "The Automobile Pocketbook." For instance, in connection with automobile chains, he says: "It is very seldom that an engine will develop its full power when the car is running on low gear, and a factor of safety of five will be found quite customary practice when calculating the strength of the chain on this basis. So a chain having an ultimate tensile strength of 5,000 pounds should not be subjected, under working conditions, to a strain of over 1,000 pounds."

### BEST ROUTE, SPRINGFIELD TO ALBANY.

Editor THE AUTOMOBILE:

[1,214.]—A party intending to make a trip to New York State this summer desires information as to the best route between Springfield, Mass., and Albany. Can you or any of the readers of this magazine who have been over the several routes give any light on the subject? How long can an owner of a Connecticut car tour about New York State without getting his car registered in that State?

ROBERT E. HARRIS.

Putnam, Conn.

At the present time the direct route between Pittsfield and Albany via the Lebanons, Brainard and Nassau is closed by order of the State Engineer, in connection with the considerable improvements and reconstruction of the line, and there is no knowing when this route will be open to travel again. For this reason, it is necessary either to push through the improvements in process, or make a detour from some point south of Pittsfield (usually Stockbridge) to State line; thence west through Chatham and Valatie, meeting the Poughkeepsie-Albany line about twenty miles below Albany. Maps of both the regular route and this special route will appear in the New England edition of "The Official Automobile Blue Book for 1908." Under the present law any automobile may remain indefinitely in New York State provided it is equipped with a regularly issued license from any other State.

### POINTERS FOR A PROSPECTIVE PURCHASER.

Editor THE AUTOMOBILE:

[1,215.]—Will you kindly give me your private opinion as to (1) whether a two-cycle, double opposed motor, shaft drive, placed under the hood in the front of the chassis, is as serviceable; i.e., will it have the motive power for heavy roads, such as for mud, hill climbing, etc., as when the weight of motor is placed under the hind axle? (2) Is a 15-16-horsepower outfit better than an 8-10-horsepower for general use in the country for poor roads, hill climbing, etc.? (3) Would it be feasible to use a set of steel tired wheels for muddy and poor roads; i.e., will they give the resistance necessary for practicability, and would it cause too much jarring for the motor? Or would it be better to have solid tires?

My idea was to get a motor and use two sets of wheels; one set with steel tires and the other pneumatic, for use when the roads are fine. (4) What is the best height and width of tire for the wheels for use (hills and mud) as stated in the former query? (5) Is an air cooled machine of given horsepower just as serviceable and practicable as the water cooled, or has it disadvantages?

Contemplating purchasing an auto, these are a few points on which I wish some light before investing. J. C. HUBENTHAL.  
Belmont, Wis.

1. This will depend upon the design. If the latter be such that a sufficient proportion of the load comes over the rear wheels, the motor forward will be serviceable and probably more convenient than when placed in the rear. Putting the motor over the rear axle and designing the car so as to carry most of the weight of the load there, would give poor balance.

2. The larger motor would naturally be more desirable for poor roads and hill-climbing, as these present conditions under which the maximum power, consistent with light weight, is an essential.

3. Steel tires would not be practical, whether on good or bad roads, as they would not give the desired amount of traction, and they would subject the motor to excessive pounding, except at very low speeds. Solid rubber tires would naturally be preferable. The idea of using steel-tired wheels in fair weather and pneumatics in stormy weather is hardly feasible, unless you intend to carry both sets with you at all times and get out and change whenever necessary.

4. This would depend upon the weight of the car, and if the latter were not great, a two or three-inch tire on a 42 or 44-inch wheel would be advisable, particularly for mud.

5. This is largely a matter of personal opinion. In some cases the air-cooled motor has been found superior.

### WHAT IS WRONG WITH THIS CARBURETER?

Editor THE AUTOMOBILE:

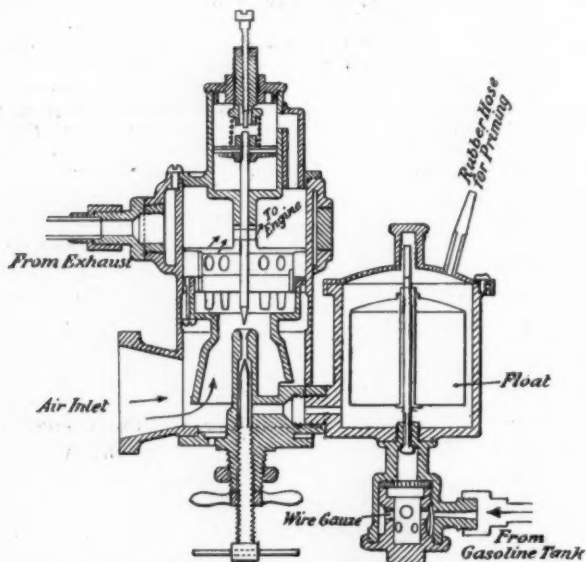
[1,216.]—I would like to ask you about the setting of the carbureter on our Pierce Great Arrow car, 28-32 horsepower, 1906 Model, which is the special carbureter used on most of that date Pierce cars. During the past year we have averaged five to six miles on a gallon of gasoline. But lately have raised and lowered the float and changed the opening of needle valve, with no better results. Can you suggest how I can get more miles to the gallon with the present carbureter? Some suggest setting the float so the gasoline will raise 1-32 inch below the spray nozzle. Do you think that right, or would you set the float higher? And what position should the spark and throttle level be in to test the carbureter while car is standing still? Inclosed find drawing of the carbureter. Do you think some other make of carbureter would do better on this car? Ithaca, N. Y.

W. J. WILSON.

The level of the gasoline should be 1-16 inch below that of the opening of the nozzle. It is customary to test a carbureter by closing the nozzle to a point where just enough gasoline is vaporized to run the motor without missing at its slowest speed, the spark advance lever being placed at the usual starting point. This is done by starting the motor and gradually closing the needle valve until the motor will no longer run without missing. It is then opened slightly again until the missing disappears, and made fast at that point. The needle must be turned very little at a time. The motor

is then speeded up and the auxiliary air intake of the carbureter adjusted to give the best results. Just what opening there should be for the different speeds may be learned by closing the opening, either with an improvised disc, that may be opened or closed as desired, or by placing the hand over the outlet and allowing more or less air to enter, according to the action of the motor at the different speeds.

The mileage you have been averaging is very low and may not be the fault of the carbureter altogether. Probably not at all, as there may be considerable loss of compression round either the pistons, or through the valves, which would account for the excessive amount of fuel required to do the same work. We should not recommend changing the car-



Section of 1906 Model Pierce Great Arrow Carbureter.

bureter without investigating the cause of the lost power more thoroughly and think an appeal to the makers of the car for information would be the wisest step to take, before making any radical changes of this nature. The makers of the Pierce cars have changed the design of their carbureter considerably since the type shown was made, by making the float chamber concentric with the nozzle and by making changes in the air-valve mechanism.

#### HOW MANY CANDLEPOWER ARE REQUIRED?

Editor THE AUTOMOBILE:

[1,217.]—Please answer these questions in the next issue of "The Automobile." How many candlepower would a light have to have to give same amount of light as is given from a 7-inch searchlight? Lamp to be 6-volt, and is to be put in place of burner in searchlight.

I have a Ford runabout with a Kingston carbureter on. I can adjust this carbureter so machine will run fine for perhaps ten miles or maybe it will only run a short distance. All at once engine will slow down and just run, but if I change the needle valve sometimes one way and sometimes the other, it will run fine again for a way. Tanks and pipes are clean, so is carbureter. All connections are tight and valves do not leak. A friend of mine has same trouble. If you can help us out, we will appreciate it very much. We are both subscribers to your paper.

Oregon, Ill.

F. R. ZIEGLER.

It is impossible to answer your question from the data you give, as the candlepower required does not depend upon the size of the searchlight as much as it does upon the size of the burner employed. Generally speaking, however, it will not be possible to obtain the same efficiency with a searchlight designed for acetylene, as the light of the latter is concentrated in a very small area, whereas the filament of the average incandescent electric lamp occupies a comparatively greater amount of space. This is a query which we

prefer to put up to the experts employed by the lamp manufacturers, who will doubtless come to your aid in this column.

From your statement of the carbureter trouble, it seems apparent that when you have the needle properly adjusted you do not fasten it in place and the jolting consequent upon running the car causes it to loosen up. Once the needle is set for regular running, and this should be at a point where the motor is just getting gasoline enough to run at its minimum speed without missing, the locknut should be tightened, so as to hold the needle permanently at that adjustment. It may be that the threads have worn.

#### A PECULIAR FORM OF MOTOR TROUBLE.

Editor THE AUTOMOBILE:

[1,218.]—I drive a Premier "24" car, and am frequently annoyed and delayed by the actions of the carbureter, which is of the Schebler make. At times when I want to crank up, the carbureter belches gasoline out of the air intake, and I can do nothing to stop it. I simply have to crank and crank until the carbureter quits doing it. Sometimes I am delayed as long as an hour at a time. My motor runs along excellently, and when I stop there is no indication of trouble, but when I want to start up again, nine times out of ten it is all right. The other time, though, I am up against this trouble. This is in summer and winter alike, so I don't believe that it is produced by the condition of the weather. The valves are in excellent condition, so it cannot be because of them. Whenever this trouble arises, investigation shows that the needle valve is not sticking, nor are there evidences of any kindred troubles. I wish you would give me your opinion on this subject, through the columns of your paper, as I have exhausted my own resources, as well as those of all the garage men I know.

Chicago, Ill.

L. M. G.

It is evident that the only thing which can cause such action is the escape of compression from one or more of the cylinders through the air intake of the carbureter. Where does this compression come from? Granted that a carbureter is a mysterious device to the average autoist, and to many an otherwise skilled repairman as well, still it is not capable of producing compressed air or gas of its own accord. This compression must come from one of the cylinders; the only means by which it can find its way into the manifold is through a defective valve, and once in the manifold, the only way of escape is through the carbureter. If you are quite certain that the assumption that the valves are all right is sound, then there is a mystery to be explained, but we think you will find that a closer examination of the valves will destroy the assumption. Their seatings may be in good condition, but a stray piece of carbon, a weakened valve spring or some similar cause may prevent one of the valves from seating properly at times, and the spasmodically recurring nature of the trouble would indicate that it is only by chance that this condition is brought about. The escape of compression prevents any fuel from entering the cylinders, and naturally the motor cannot be started until it has been turned over long enough to dislodge the cause, whatever the latter may be. It is an injustice to the carbureter to attribute the trouble to it, and we think you will find a closer examination of the valves and their operating mechanism will reveal the cause. If any of our subscribers have a theory of their own in the matter we will be pleased to hear from them.

#### "THAWING" OUT A MOTOR IN SPRING.

Editor THE AUTOMOBILE:

[1,219.]—Will you please tell me how to thaw out a gas engine before spring? It is a 31-2 horsepower Palmer engine in a small launch, and as the boat is pulled up for the winter, I would like to try the engine before letting it down in the spring. Kindly inform me through the columns of "The Automobile." L. D. F.

Andover, Mass.

"Thawing" is rather a peculiar way to put it, unless you have neglected to drain the water-jacket before laying the boat up for the winter. Even in such a case it will not need any thawing by the time you get around to it in the spring, but will doubtless need a little more serious consideration. Prob-



ably you intend an "overhauling" or "limbering up." This may consist of anything from a mere cleaning to a total dismantling of the motor. If you only wish to do the former, flush out all the bearings thoroughly with gasoline, including the piston, see that the gasoline tank and piping and the carbureter, as well as the whole ignition system, are in good order and everything is clean. Provide fresh cells for the ignition battery, and after the gasoline used in the cleaning process has all evaporated from the interior apply fresh lubricating oil and the motor is ready to start.

#### SHOULD REAR-WHEEL FASTENINGS BE RIGID?

Editor THE AUTOMOBILE:

[1,220.]—In the method of fastening the rear wheels upon their axles, as described, it is impossible to entirely obviate some play between the axle and hubs by most careful adjustment of keys and pins. Is this looseness undesirable, and will it work ultimate injury to the car? The play is not in the direction of the wheel motion; i.e., tendency to shear off the key, but is noticeable when the wheel is grasped at two opposite points of the tire, and a to-and-fro motion in the direction of the axis of the axle applied.

The construction is as follows: Axle, cylindrical; no taper; a hub with a key-way its full length, but other portions being a sort of web, so that it bears upon the axle at its center and at both ends for a distance in each instance of about 3-4 inch. Near the outer end of the hub is a hole with a corresponding hole in the axle, through which a pin is driven.

As I am anxious to keep my car in the best of condition, your opinion on the above will be much appreciated.

Alameda, Cal.

MAURICE W. BROWN.

This slight amount of side play in a rear wheel is not an element of danger. Unless it be excessive, it is rather a factor of safety than otherwise. If the wheel were rigidly held laterally, it could not be turned easily and the friction would be tremendously increased.

#### SOME PRODUCTS OF AN INVENTIVE GENIUS.

Editor THE AUTOMOBILE:

[1,221.]—I have invented a device to put on an auto crank to release the engine when it kicks. I have also an idea which will roll a clincher tire off a rim as fast as those that are now made and can be made for one-quarter the cost of those on the market. I have a few more ideas, and I think it will pay you to investigate, and I am not afraid to show them. I am twenty-two years of age, and would like to get these on the market, as I think there is lots of money in them.

Chicago, Ill.

H. L. SKOLINK.

You evidently have been making a close study of the various parts of the automobile that are in need of improvement. We are always interested in learning of such devices, and in publishing them where their merit is such as to warrant it. Further than this, we cannot help you to market them, and would recommend your writing to manufacturers who make a specialty of this. You will find the announcements of a number of them in our advertising columns. The large tire manufacturers are always keenly interested in anything that will be an improvement over present methods.

#### CONCERNING VALVES IN THE HEAD.

Editor THE AUTOMOBILE:

[1,222.]—Will you kindly publish the names of four-cycle cars now using valves in the head? Can you give me the number of years each of the cars have used this system? Can you give me the name of any four-cycle car which formerly used valves in the head but has now given up the practice?

Cedar Rapids, Ia.

SUBSCRIBER.

The Matheson, Moon, Pope-Toledo, Pope-Hartford, Dorris, Mitchell, Franklin, Jackson, Knox, Marmon, Frayer-Miller, Stoddard-Dayton and probably several others, as the foregoing only happen to constitute a list of those easily recalled to mind at the moment. Some motor manufacturers, such as the makers of the Northway and others, also employ this design. The first six cars in the list have had motors of this type for three or four years, in some cases longer, and this is also true of the Knox, Marmon, Franklin and

Frayer-Miller. In the majority of the foregoing instances, the motors have never been equipped with any other type. We can not recall an instance in which this design has ever been abandoned.

#### VOLTAGE AND AMPERAGE OF IGNITION CURRENT.

Editor THE AUTOMOBILE:

[1,223.]—I am a constant reader of your "Letters Interesting and Instructive." Will you please tell me, through your columns, the voltage and amperage of the secondary wires of a Splitdorf spark coil when run by four dry cells? I mean the current that makes the spark.

Fishkill-on-Hudson, N. Y.

O. O. D.

Under favorable running conditions, vibrator coils require a fraction of an ampere for their operation, say .75, while four dry cells will have a voltage of six when new and connected in series. The current and voltage of the secondary current will then depend entirely upon the number of turns in the primary and secondary windings of the induction coil which transforms it, or "steps it up" to the high voltage. In letter 1,179, issue of THE AUTOMOBILE of February 20 last, Frederick C. Hathaway goes into this subject more in detail and we would refer you to his letter, which will be found on page 249 of the number in question.

#### WHICH GEAR SHALL I BUY?

Editor THE AUTOMOBILE:

[1,224.]—Would you kindly advise me what transmission you would recommend for a 16-horsepower opposed motor engine? I wish the planetary type. There is such a difference in price that I can hardly tell what to buy. The New York can be bought for \$37 and the Syracuse Gear Company asks \$60 for the same power size.

Primghar, Ia.

JOS. REYNOLDS.

We are in no better position in this respect than you are. Doubtless the maker of the more expensive gear has good reasons for asking a higher price, and will be glad to inform you what they are upon application. You will find that there is quite a difference in quotations on any kind of machinery where made by a number of different manufacturers. It all depends upon the design, material, workmanship, conditions under which it is produced and the like. It is a matter that you will have to decide for yourself, after carefully weighing all the claims one way or the other.

#### ABOUT KEROSENE vs. DECARBONIZING FLUIDS.

Editor THE AUTOMOBILE:

[1,225.]—Will you kindly inform me, under the head of "Letters Interesting and Instructive," whether the various decarbonizing fluids and mixtures advertised so freely contain ingredients that are injurious to the engine? Also are these patent preparations any better in the long run than simple old-fashioned kerosene?

Walden, N. Y.

CARBON.

Never having analyzed any of the preparations in question, nor having come across a published analysis of their ingredients, we are at a loss to state whether they might be injurious to the cylinder walls or not, but, on general principles, would be inclined to assume that they were safe to use. We do not know that there is anything better than kerosene.

#### USING LARGER TIRES THAN RIMS CALL FOR.

Editor THE AUTOMOBILE:

[1,226.]—Is it advisable to use 4-inch tires on 3 1/2-inch rims? Also, in adjusting a loose connecting rod, should it be made to work a little stiff?

Batavia, N. Y.

L. L. MULCAHY.

We have known of this expedient being adopted, but never had an opportunity of learning what the outcome was after an extended period of use. On general principles, should not think it to be advisable for several reasons, chief among which would be the difficulty of putting the tire on the rim, the danger of pinching the tube in the process, and more than either of these, the risk of rim-cutting. In adjusting any bearing, it should be made slightly loose, rather

than stiff; that is, just sufficient play to permit the shaft to turn easily, but not enough to make it noticeably loose. Even a slight amount of stiffness in the adjustment of each connecting rod bearing would make it next to impossible to turn the motor over by hand, from which it will be evident that a great amount of resistance would be imposed on the motor when running and until the bearings had been worn down so as to allow for a little play, it could not develop its full power.

### HOW TO READ A "COMPRESSION CHART."

Editor THE AUTOMOBILE:

[1,227.]-Please tell me, through "Letters Interesting and Instructive," how to read a compression chart. APPRENTICE.  
Parsons, Kan.

It is not quite clear to us what you intend by a "compression chart." If you mean a table of compression pressures it will naturally depend upon the arrangement of the latter and the manner of reading it will be self-evident. Probably you mean an indicator card, and if this be the case we would refer you to an article entitled "The Indicator Diagram and What It Means," by Victor Loughheed, which appeared in THE AUTOMOBILE of January 2.

### NO TROLLEY FROM NEW YORK TO BRIARCLIFF.

Editor THE AUTOMOBILE:

[1,228.]-Will you kindly supply the following information in "Letters Interesting and Instructive?" Is there a trolley connection between New York and the Briarcliff race course? If so, will you kindly state the route and fares? SUBSCRIBER.  
Freeport, N. Y.

There is no trolley connection between New York City and the course of the Briarcliff Trophy race. It may be reached by taking the Harlem road to Briarcliff Manor, or the Central to Ossining. The Briarcliff course is peculiarly off direct transportation lines, though it can be reached from other points than New York. A good map would help.

### THE PRACTICAL SIDE OF THE QUESTION.

Editor THE AUTOMOBILE:

[1,229.]-When an automobile weighing 2,000 pounds descends a 25 per cent. grade it is propelled by the force of gravity equal to one-fourth its weight, plus the propelling force of its motor. The retarding forces which must be overcome are total friction, air resistance, and the resistances to be overcome before the motor can deliver propelling power. These motor resistances consist of compression, scavenging, and the momentum of the piston and connecting rod at each end of its travel. Of these resistances, friction decreases as the speed increases, while the other three increase with the speed. If the motor is turned by force applied to the drive wheels, these resistances remain constant just the same as if the explosions overcame them, but the power to overcome the resistances must be taken from the gravity force which I have mentioned, instead of the motor power, and this leaves just that much less gravity force to propel the car down the grade. The faster the drive wheels turn the motor, the greater will be the resistance to be overcome, and the slower the car will move. Therefore, if we wish to use the motor as a retarder to car movement, we will get the greatest service by using high gear, with the spark and gas supply cut out. There should be plenty of air taken into the cylinders in place of the gas to secure the compression resistance to its fullest extent. Taking in gas does not differ in its results from taking in air, if the throttle be opened to its full extent. Therefore, to coast down hill using the motor as a retarder, we should have a convenient circuit-breaker and use the speed gear that gives the required resistance, high for steep hills, and intermediate or low for hills of less grade. The speed gear should not be thrown in after the car has added momentum to its propelling force as a means of bringing the car to an emergency standstill, except to avert very serious disaster, and then the act is very likely to produce a break which will release all control and lead to the very result that is so important to avoid. Under stress of this condition, first put on your hub brakes, burning them out by fierce friction if need be, then throw in slow gear to assist the other brakes. You may have some hub brakes to replace, but you will not go to smash by complete loss of control.

There are some automatic safety additions to the present automobile which it seems to me must come into use soon: The differential, which does not act as such until the front wheels are turned

from straightaway a definite distance; the use of a spring to keep the guide wheels straightaway until deviated by the operator's action, and then if the hand leaves the guide wheel they will return to straightaway; a convenient current cut-out which can be operated in an instant to shut off motor force.

Marshall, Minn.

A. D. HARD, M.E.

### DETAILS OF A STEEL-TIRED STEAMER.

Editor THE AUTOMOBILE:

[1,230.]-I am building a steam auto with my patent boiler, known as the Hazelton boiler. My boiler is upright, 20 inches diameter, 42 inches high. It sets either in front of the axle or behind the rear axle. The center column is 10 inches diameter, the tubes 1 by 5 inches, 600 of them. The tubes are horizontal. The water is in the tubes. Depth of water in the boiler, 2 feet. My first boiler, made twenty years ago, with ten others, sets at the foot of Thirtieth street, East River, in the New York Mutual Gas Light Co.'s works. The White steam boiler has 5,000 square inches of heating surface; my boiler has over 10,000 square inches of heating surface, and holds 100 pounds of water. I can carry 250 pounds pressure if necessary. Engines are the Mason type, made in Boston, cylinders 3 by 4 inches; wheels are 4 inches diameter, steel tires of 21-2 inches face. Front axle is a Timken roller bearing axle. My drive axle 1 5/8 inches diameter, with sleeves and four brass box bearings. Both wheels keyed on the same axle, with one sprocket and one brake. No differential gear in the center of axle. Axles are connected with reaches made of 21-2 inch angle iron. I set four full elliptic springs 44 inches long with the two bed plates bent near the ends, so they will touch near the ends before they touch in the center. This will take all jar. Body is a regular two seated carriage type, set on the springs. Wheels being 40 inches high, give plenty of space to hang boiler 24 inches below the floor line. Engines are under the floor, midway between the two axles, in a tight box, to keep dust from the chain drive. Wheelbase, 9 feet; total weight, about 1,800 pounds. The two seats are far enough apart to set two stools between them. Steel tires have been used since old King Solomon's day, and I am going to try and use them on a steam auto. They will not puncture, and will last at least ten years, and can be replaced with a new set for \$10. Locomotives and all cars have no differentials, and they go around corners nicely. The elevated roads in your city turn very short corners without any trouble, and my auto with smooth tires will go around corners without any trouble. The inside wheels on the cars and my auto must twist on the track and ground. My object in building this is to bring out a cheap auto. With this boiler I can use hard coal successfully or kerosene oil. I can run one hundred miles with one hundred pounds of coal. One pound of coal in my boiler will evaporate twelve pounds of water; one pound of kerosene will evaporate twenty-five pounds of water, and will cost four times the cost of coal. M. W. HAZELTON.  
Oneonta, N. Y.

### A FURTHER PHASE OF GYROSCOPIC ACTION.

Editor THE AUTOMOBILE:

[1,231.]-E. F. McNutt's article on gyroscopic force appearing on page 245 of "The Automobile" of February 20, calls attention to a surprising lack of judgment on the part of builders of racing cars. His statements are correct, but he overlooks one important feature which would add strength to the argument that either racing motors or race courses should be run in the opposite direction: A motor whose flywheel revolves toward the left side of the chassis produces a resultant torque tending to turn the entire chassis over in the opposite direction. This force acts in the same direction as those mentioned by Mr. McNutt, and adds to the danger of upsetting when turning to the left.

The writer would recommend changing the motors rather than the race courses, as drivers have become accustomed to turning to the left, and, as a rule, would prefer not to change, while it is as easy to make a motor run one way as the other. The ideal motor for racing purposes is one revolving in a horizontal plane (Adams-Farwell fashion). The gyroscopic force exerted by such a motor does not offer the least resistance to turning the car to either right or left, but it does exert a powerful force counteracting any tendency of the car to upset.

The resultant torque of the motor revolving in a horizontal plane does not affect the stability of the car in any way. When a gyroscope representing 4 per cent. of the total weight of a passenger car makes it possible to run on one rail, as has been done recently in England, a light racing chassis with one or two heavy motors revolving around vertical shafts certainly could take a curve at much higher speed than would be safe with other machines. The speeds of racing cars have increased in the past few years, and it is now time for those interested to consider such questions as this, which not only make higher speeds possible, but reduce the danger.

Dubuque, Ia.

GLEN MUFFLY.



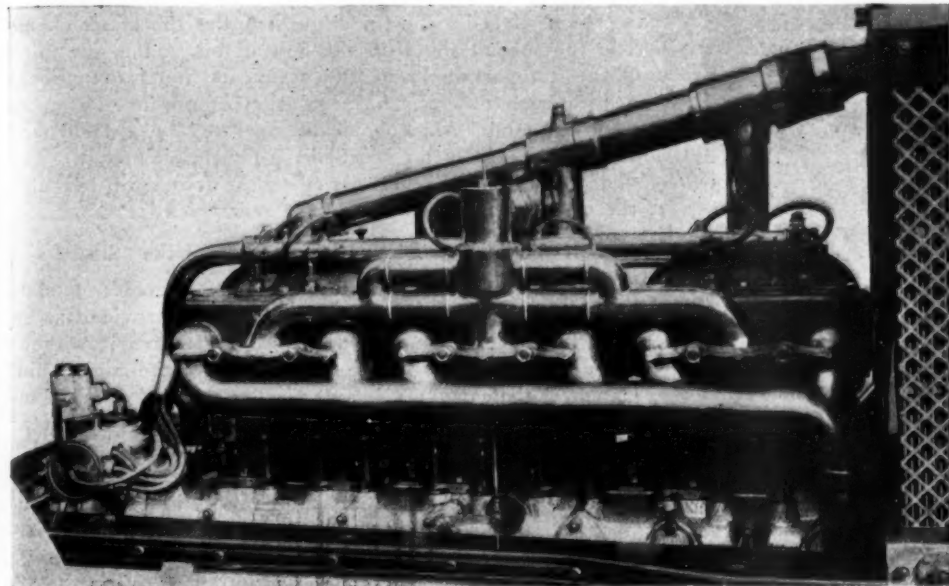
## FEATURES OF RENAULT SIX-CYLINDER CHASSIS

**T**HOUGH Louis Renault and the engineers associated with him in the production of the much-admired models of the Billancourt factory have never been enthusiastic public supporters of the six-cylinder principle, and have had sufficient success with "fours" to be satisfied with that type of engine, Renault Frères are producing a six-cylinder car for

engine, like all other models, are fitted with four rings, three on the upper part and one on the lower, this latter being designed to clear the cylinder walls of any excess of oil. It is an arrangement which has been adopted for several years to prevent the passage of oil above the cylinder heads and the consequent fouling of plugs and valves. A single cam-shaft, machined out of the solid, operates both inlet and exhaust valves on the left-hand side of the engine. To facilitate the starting of such a large engine a half compression lever, operated by a double cam, has been fitted.

The arrangement of intake, exhaust and water piping, always a complicated matter on a six-cylinder engine, has been rendered more difficult on the Renault by the addition of a self-starter. A glance at the illustrations of the engine, however, shows a remarkable accessibility, and a detailed examination reveals such a disposition of the various organs as to ensure the dismounting of any part with the least amount of labor. Inlet and water piping is identical with that of the smaller engines; the use of thermo-syphon circulation, besides enabling the pump to be discarded, bringing about a simplification of piping. The efficiency of the ther-

mo-syphon for a large engine has been amply proved by the performance of the 1906 and 1907 racers. In this connection it is interesting to recall that in 1905, when Renault experimented with force feed water circulation, all three racing cars overheated. For the first time the grilled tubes have been abandoned on all models in favor of plain vertical copper tubes connected to upper and lower receivers. This multitubular radiator was used for the first time last year



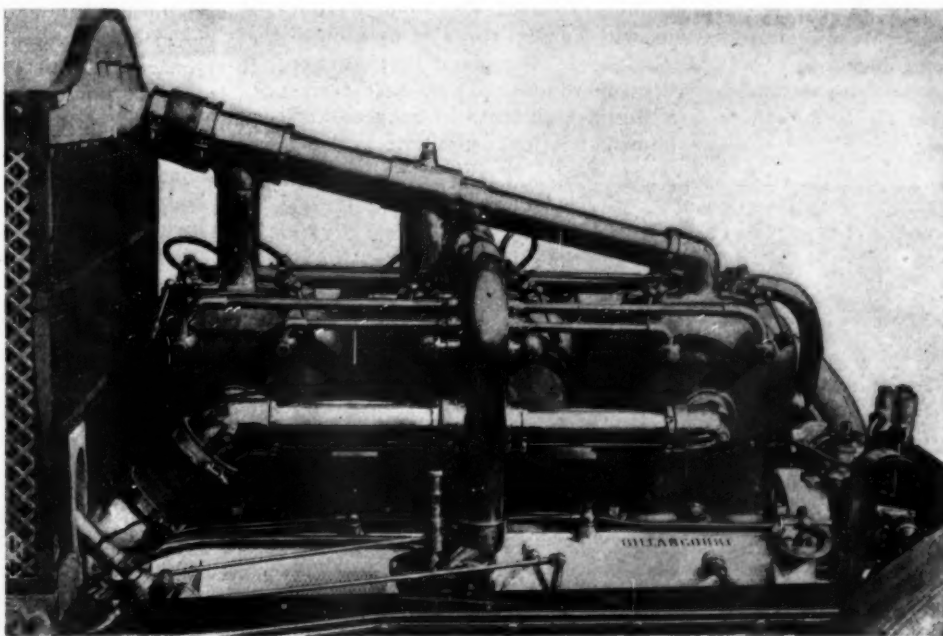
Valve Mechanism on Renault Clean-cut Accessible Six-cylinder Engine.

1908. Larger and more powerful than any of the four-cylinder models, with a wheel base of 156 inches, it forms the highest type of long-distance open or closed touring car, and is declared to be capable of a speed of 70 miles an hour with seven passengers on board.

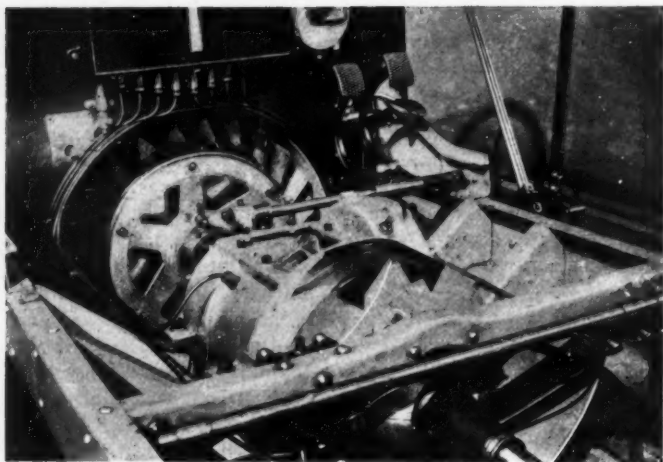
Though an entirely new model, differing from all others in power and size, the 50-60-horsepower six-cylinder Renault is but a development of the smaller cars. Indeed, throughout the entire series, from two-cylinder taxicabs to six-cylinder touring cars, there is a remarkable uniformity of design; even the powerful racing cars of the last two or three seasons being but enlarged touring cars, differing naturally in detail, but identical in general design.

Even the engine, though composed of six cylinders instead of four, has an appearance which is thoroughly familiar to those acquainted with the other Renault models. As in the fours, the cylinders are cast in pairs, the bore and stroke being  $4\frac{3}{4}$  inches by  $5\frac{3}{4}$  inches. Normally, the engine speed is 1,400 revolutions a minute, but can be accelerated much higher without any danger of undue wear to the connecting rods and main bearings. It is hardly necessary to say that the horsepower rating is a most conservative French one.

The pistons of the six-cylinder



Carburetor Side of Engine, Showing Magneto and Self-starter.



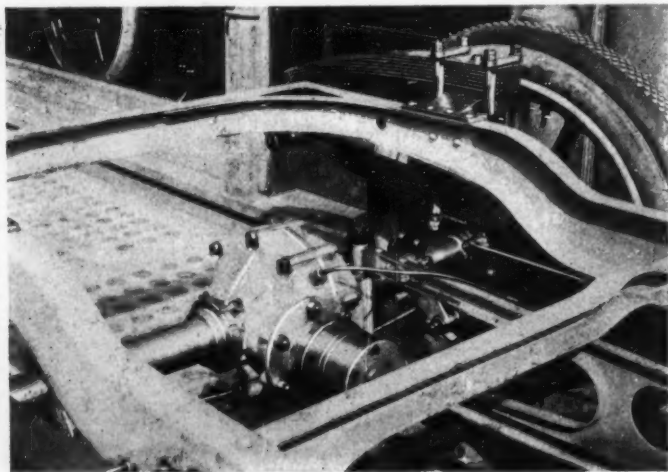
Compact Gear Set, Clutch and Flywheel Fan.

on certain models and all racers, and gave such satisfactory results that it has been adopted exclusively. Among other advantages is the saving of weight through discarding the metal fins. On the periphery of the flywheel, just to the rear of the radiator is a sheet steel fan by which a strong current of air is always assured. One of the small refinements of this simplified cooling arrangement is the method in which the radiator is mounted on the dashboard. When the inlet and outlet pipes have been disconnected all that is necessary to dismount the radiator is the release of one nut on each side of the chassis. At the base of the radiator is a short swinging arm slotting into a bracket on the frame and held by a single nut. It is the release of this nut which allows the withdrawal of the arm and the dismounting of the radiator.

For the six-cylinder engine, the Renault automatic carbureter, with some detail refinements over previous models, is employed. It will be noted that the carbureter and the intake are at opposite sides of the engine, the inlet pipe being carried over the head of the central pair of cylinders to a mixing chamber at the opposite side, in which the gas supply is regulated. The sparking point being fixed, engine control reduces itself to the simple operation of one lever under the steering wheel, or the use of the foot accelerator.

#### How Ignition System Has Been Simplified.

Renault engineers have long been of the opinion that one reliable ignition system, with current supplied by a high-tension magneto, was all that is necessary, and that storage batteries as a stand-by were superfluous. Thus, on the six-cylinder model, there is a Bosch high-tension magneto and one set of spark plugs immediately over the inlet valves.



Rear Axle and Three-quarter Elliptic Springs.

The magneto, considerably smaller than those of previous years, is carried on the forward end of the engine, its revolving armature being driven by helicoidal pinions from the camshaft. The distributor is composed of a fiber cam having a brass core revolving in front of an ebonite plate holding four brushes which friction on the cam. To dismount the distributor no tool whatever is required; a half-turn of a catch and it is freed. All the wiring is carried in a metal tube running over the cylinder heads, the connection to the plugs being made by convenient ebonite discs.

In one respect only has the engine lubrication system been changed. At the forward end of the engine is a three-way cock which, placed in first position, empties the crank chamber, in the second shuts off the flow of oil, and in the third puts the compartments of the crankcase into communication with each other. The regulation of oil for the 50-60. horsepower model is mechanically operated by a dashboard lubricator driven by an eccentric from the camshaft. The oil from the sight feeds is carried to the four main bearings of the engine, the gear box and the rear axle.

#### Self-starter Is a Distinctive Feature of the "Six."

The distinctive novel feature of 1908 Renault models is the use of a self-starter. Although this is provided as an extra, all the larger engines are fitted to receive it without any structural change. At the forward end of the engine, and operated off the camshaft, is a vertical, air-cooled pump compressing air into a tank carried within the frame to the rear of the dashboard. On a pressure of 45 pounds being reached, a diaphragm acting upon the admission causes the pump to run idle. Between the air tank and the cylinders is a controlling mechanism mounted on the dashboard, and consisting, in addition to a cock opening or closing the passage of air to the cylinders, of a gauge and outlet, allowing the air to be used for the inflation of tires. A distributing drum, actuated by a hexagonal shaft driven by a helical pinion from the camshaft admits the flow of air into each cylinder through an automatic inlet valve at the commencement of the working stroke.

Clutch, gear set and transmission show few changes from previous models. The clutch is of the direct cone type, the face of the female member being cut to form tongues which aid in obtaining a progressive hold. Four speeds forward and reverse are obtained through a progressive type of sliding gear transmission, giving direct drive on the high. Final drive is by cardan shaft and rear live axle.

Suspension on the six-cylinder and all larger models is by three-quarter elliptical springs in the rear and semi-elliptics in front. In addition, the Renault hydraulic shock absorber is fitted both front and rear. For use under the rougher road conditions of America, all chassis are equipped with heavier axles and springs and are given a slightly greater clearance. The body building space on the six-cylinder model is 118 by 39¼ inches. Wheels are 935 by 135, front and rear.

#### HOFFECKER CORRECT UNDER A. C. A. TEST.

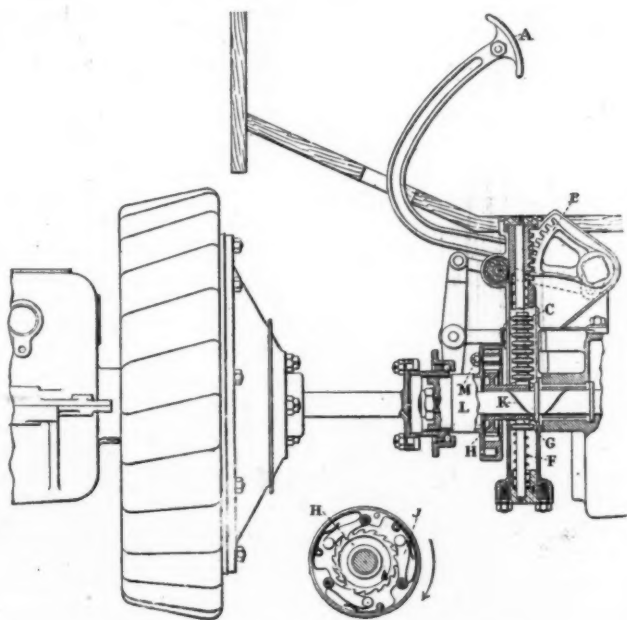
In connection with the report of the first public tests of the dynamometer installation of the Automobile Club of America, held early in January, it was reported that the Hoffecker speedometer, when tested in comparison with the speed-recording apparatus of the equipment, did not agree with the latter at the higher speeds. It appears that this was an error, due probably to the difficulty of watching both the speedometer and chart readings at the same time. The official results of the tests, made public subsequently and testified to by both President Colgate Hoyt and Dr. S. S. Wheeler, showed the Hoffecker speedometer with which Mr. Hoyt's car was equipped when under test, to have been perfectly accurate at all speeds tried, which were ten, twenty, thirty, forty and fifty miles per hour.



### SIMPLE SELF-STARTER FOR SMALL CARS.

Starting an automobile from the seat has been too long before the public to be really considered a novelty. By a strange inconsistency, however, manufacturers have persisted in fitting self-starters to large touring cars only, the engines of which were not frequently stopped and restarted, and which, further, were generally in charge of a paid chauffeur. Small and medium powered cars, used for town and suburban work, generally driven by their owners, and required to be cranked scores of times a day, have been ignored by the vast majority of builders. The explanation is readily found, the usual method of starting by means of a charge of compressed air entailing too many additions for it to be applicable to any but the larger models.

One of the exceptions to this rule is the Renault firm, which has recently produced a mechanical self-starter to be used only on their smaller models. Its operation consists in pressing down a pedal *A*, shown in illustration; there is no compressed air tank or piping liable to leak, and the appa-



Details of Renault Mechanical Self-starter.

ratus is so compact and simple as to be specially adapted for small and medium-powered cars.

The entire apparatus is mounted on the forward end of the gear box, the foot pedal connecting with a toothed sector *B*, which in turn gears with a toothed rack *C*. This rack being in gear with the pinion *G* on the clutch shaft, depression of the pedal therefore produces rotation of the shaft and, at the same time, of the motor. The rack slides up and down in a bronze casing, and after being forced down is automatically raised by the spring *F*. Lateral thrusts, to which it is subject by the effect of the sector and the pinion, are taken up by friction rollers which reduce to a minimum the power necessary to operate it. The pinion *G*, the rotation of which commands the crankshaft, is provided with a free wheel ratchet device shown in the separate drawing. Thus when the speed of the shaft exceeds that of the pinion, which is the case when the engine is started, it simply overruns the free wheel. All the smaller 1908 Renault models, both two and four-cylinder, are designed to receive this self-starter.

For cutting aluminum in a lathe, one of the best lubricants that can be used is said to be paraffin oil, as it prevents, to a great extent, the liability to tear the surface of the metal, and enables a better finish to be obtained.



The Old Making Way for the New Winter Conveyance.

Heretofore the snow has been disturbed only by sleighs and horse-drawn vehicles. The photo shows a Premier with a party of fresh-air enthusiasts on the road along the Hudson river.

### AUTO EXPORTS CONTINUE TO GROW.

Despite the more or less widely circulated report that American manufacturers were trying to "dump" unsalable cars on the British market that was apparently given considerable credence in England, the exports of American automobiles to the United Kingdom in the month of January, 1908, increased to \$194,805, as compared with but \$66,698 for the corresponding month of 1907, which was generally conceded to be a banner year. There is also an increase noticeable in the amount sent to France; other European countries fell off. The total for the month shows an increase of about \$30,000. For the seven months ending with January in the past three years, the growth has been as follows: 1906, \$1,438,600; 1907, \$2,429,543, and 1908, \$2,713,459. The detailed report for January, 1908, is given herewith:

Exported to—	1907.	1908.
United Kingdom.....	\$66,698	\$194,805
France .....	26,380	39,015
Germany .....	9,171	2,616
Italy .....	41,070	15,231
Other Europe.....	10,082	6,353
British North America.....	37,638	19,064
Mexico .....	55,932	47,597
West Indies and Bermuda.....	35,975	31,956
South America.....	23,839	21,551
British East Indies.....	4,673	1,910
British Australasia.....	53,157	14,668
Other Asia and Oceania.....	9,713	8,051
Africa .....	819	697
Other countries.....	1,320	2,138
<b>Total automobiles, and parts of.....</b>	<b>\$376,467</b>	<b>\$405,652</b>

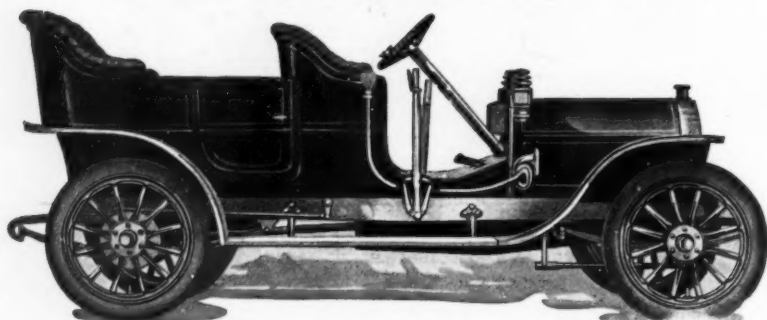


Editor Newett of "Iron Ore" in His Franklin.

The photo was taken at Ishpeming, Mich., after a twelve days' run in the woods among the iron mines. This part of the country is the paradise of "old-fashioned" snow storms.

## CONCERNING ATLAS TWO-CYCLE CARS FOR 1908

NOTHING has afforded more striking evidence of the widespread growth of interest in the two-cycle motor for automobile use, than the great success with which cars of this type met during the past year, and it is evident that while the campaign of educating the automobile public up to the merits of the two-cycle has not been as rapid as it might be, the latter is now making greater strides than ever before. Few better instances of this could be cited than that of the



Atlas 46-horsepower, Four-cylinder, Two-cycle Car for 1908.

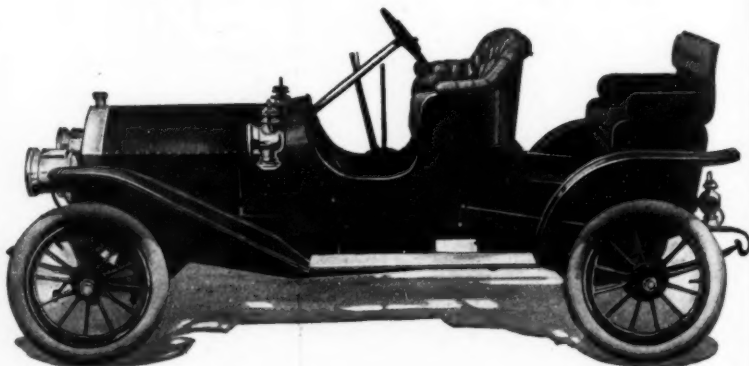
Atlas cars, made by the Atlas Motor Car Company, Springfield, Mass. This company has been developing a radically different type of two-cycle engine for both pleasure and commercial use for several years past, and the success with which it has met in both of these fields is evidence of the recognition of the correctness of its principles of design and construction. It represents motor simplicity reduced to its last degree, as each cylinder has but two moving parts, the piston and connecting rod, and with any number of cylinders, there can be but one additional part in motion, the crankshaft.

A high crankcase compression is employed, reaching 8 pounds to the square inch, practice in this field not favoring a maximum much more than 50 per cent. of this, while by means of a novel and ingenious system of multiple transfer ports coupled with a special type of four-way deflector cast integrally with the piston head, a positive transfer of the full charge is insured at every stroke. A plan view of this specially designed deflector gives it the appearance of a Maltese cross, and in practice it is found that the fresh incoming charge concentrates at the center of this cross and rises as a solid column until it strikes the head of the combustion chamber where the spark plug is located, then mushrooming and increasing the efficiency of the exhaust. The latter also

takes place through a series of multiple ports placed round the circumference of the cylinder, and by this means it has been found possible to reduce the objection of mixing the fresh charge with the incoming fuel to a minimum, which accounts for the high efficiency of the Atlas motor. For the same reason speeds of over 2,000 r. p. m. can be obtained running light, and no matter how closely the motor may be throttled, it will

fire every time, as the column of incoming fuel strikes the spark plug directly. This naturally permits of a very wide latitude of regulation, and as each piston is balanced by counterweights on the crankshaft, which is of the built-up type, in addition to being arranged so as to balance one another, the engine is remarkably free from vibration in either the two, three or four-cylinder types and at all speeds.

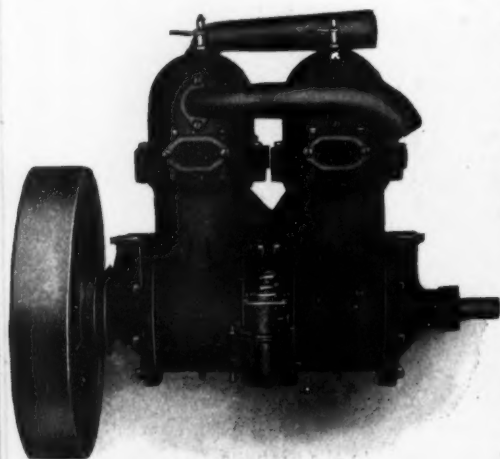
The interior of the crankcase is carefully machined to size, the aspiration of the fuel being controlled by a port cut in a rotating plate mounted on the crankshaft. This port remains open during the entire upstroke of the motor and is closed on the downstroke, thus exerting a steady and uniform suction on the carbureter that avoids erratic action of the motor and absolutely prevents it from reversing itself, this being a more or less common fault of some types of two-cycle motors. All main bearings and crankpins are made glass-hard, ground and polished exactly to size, while the bushings of the bearings are made of exceedingly hard bronze. This construction practically eliminates wear and will run cool at the highest speeds with a minimum amount of oil, no adjustment being necessary, while it also prevents leakage of the charge from the crankcase by way of the bearings. Both ends of the connecting rod are made in the same manner, the rod itself being an I-beam drop-forging. All joints of the crankcase are ground, no gaskets being employed. The crankshaft discs are designed to fill as much of the interior of the crankcase as possible; they are hollow in construction and are weighted



Convertible Body Employed on the 34-horsepower Atlas.

to properly counterbalance the piston. The thermo-syphon system of cooling is employed, pipes of ample size being utilized, while the ignition timer is placed directly on the forward end of the engine shaft, thus dispensing with all gears. Lubrication is by means of a mechanical force-feed oiler operated from the rear end of the crankshaft, oil being fed with the charge. There is but one adjustment on the entire motor, that of the needle valve of the carbureter.

For the present season, the makers of the Atlas are listing three cars, a two-cylinder 22-horsepower runabout, a three-cylinder runabout or touring car of 34-horsepower, a planetary or sliding gear being optional on either of these, also a four-cylinder 46-horsepower touring car with three speed selective gear-set, besides which there is also an Atlas town car or taximeter, on the 22-horsepower chassis. This has a multiple disc clutch, whereas the four-cylinder touring car employs a cone with cork inserts, the latter also being employed on the smaller cars when a sliding gear is used. The bodies are large and roomy in every case and the 34-horsepower car is fitted as a runabout with an ingenious convertible type seating two or four.



Simplicity of the Atlas Motor.



## AMERICA HAS AN AERO INVENTOR IN FRANCE

PARIS, March 2.—Among the small army of enthusiasts gathered in and around Paris with the intention of solving the problem of aerial navigation, America has her own representative in the person of W. H. Fauber, formerly proprietor and manager of the Fauber Manufacturing Company, Chicago and Elgin, Ill. After months of quiet experimenting, Fauber has secured from the German authorities a master patent on an aeroplane which, he believes, will cause a sensation when shown to the public. A German patent being the most difficult to obtain in the world, and only granted after thorough investigation, the mere fact that the Fauber aeroplane has been accepted is proof of its value. Before patents were granted canvas and bamboo models had to be produced and flown before the authorities.

Fauber has commenced the construction of his patented aeroplane, fitted with special pneumatic tires, and will equip it with a 24-horsepower Antoinette engine. Total weight, with the pilot aboard, will be only 510 pounds. Although he would prefer to have a 50-horsepower engine, Fauber declares that he will make attempts at flight with the smaller power as soon as possible. In his opinion the Chanute type of aeroplane as used by Farman is fundamentally wrong and, though successful for short distances, will never be of much practical value. An aeroplane built under the Fauber patent will be as self-balancing as a boat, and will allow the pilot to rise to any height with safety. Should the motor stop or the steering gear become disarranged, the machine would still descend safely. Unless completely wrecked by a storm, the aeroplane would always allow its pilot to gradually come to earth after an accident to the machinery.

Had he not been fully occupied with practical hydroplane experiments, Fauber declares that he would have trained and competed for the \$50,000 aeroplane prize recently won by Farman. He had to be content, however, to first secure patents on his flying machine before making it public. Mak-

ing allowance for changes which will necessarily have to be made in the model as suggested by experience, the American aeronaut believes that he will show very practical results before the end of the year. Outside experiments with the flyer will commence shortly and continue throughout the year.

At the present time Fauber is busy on two distinct types of hydroplanes, one with a screw, the other with a paddle. The latter has reached its fourteenth experimental trip, and though not yet quite satisfactory, promises to give good results. A paddle hydroplane, says Fauber, is generally treated as a joke, but this type will prove itself superior to the screw and will prove applicable to large steamers.

The screw propeller hydroplane on which Fauber is engaged is so far advanced that he hopes to be able to build a number of them in the spring, and, if possible, will enter a racing model in the Monaco meet, April 1 to 13. This boat is a combination between a hydroplane and a displacement boat, the bottom being of a special shape and designed to navigate in rough water. It has the appearance of an ordinary boat, but is much more stable and is self-balancing. An 80-horsepower eight-cylinder Antoinette engine without carbureter, the gasoline being injected direct into the cylinders, is employed. These engines are always difficult to start, but when they do get under way they go off like a cannon ball. On the first trial Fauber's superintendent was thrown right over the engine, fortunately without injury, and on the second trial trip the motor started with a rush and snapped off three of the blades of the propeller. Although the propeller was made specially for this work by the Antoinette people, it was not sufficiently strong to stand the enormous strain put upon it by the instantaneous starting of such a powerful motor. This is a difficulty other aeroplane and hydroplane experimenters have had to contend with, and it will be necessary to pay special attention to the study of propellers for use with the eight-cylinder engines.

### BIG WAR DIRIGIBLE FOR FRENCH ARMY.

PARIS, March 2.—The French Army has made arrangements with the Lebaudy Brothers and Engineer Julliot for the construction of a dirigible balloon for military purposes of 380 feet in length and of a capacity of 290,000 cubic feet. The gas bag will be made of rubbered cloth of sufficient strength to withstand a considerable increase in internal pressure, and as in all the French military balloons, an internal ballonnet fed by a powerful fan will maintain the desired pressure.

In general the characteristics of the *Patrie* and *Lebaudy* will be followed in the platform design. The power plant, however, will be entirely original. Two Panhard motors, each of 120-horsepower, will drive four propellers, two forward and two aft. The engines decided upon are those used in the *Panhard-Tellier* racing motor boat, the fastest craft of its size ever built in France. The weight of each of the four-cylinder motors is 617 pounds. In the motor boat the two engines were placed side by side. Very probably this arrangement will be preserved in the airship, the entire engine platform of the boat being transferred to the war balloon. One reason for fitting two independent engines is to prevent a repetition of the accident of the *Patrie*, where, owing to the breaking of a gear both ignition systems were disabled. It is estimated that a speed of 40 miles an hour will be attainable under ordinary conditions. The *Patrie*, which at the time of its evasion was the largest military airship in commission, was 293 feet in length and equipped with a 70-horsepower four-cylinder Panhard racing motor.

### FIRST AERO SCHOOL IS ESTABLISHED.

Without doubt the latest field of knowledge to be entered by the correspondence school is that of aeronautics, which has its first academy in the International School of Aeronautics, recently founded by Albert C. Triaca, at 108 West Forty-ninth street, New York City. Three distinct courses are outlined in the prospectus, covering respectively spherical balloons, dirigibles, and aeroplanes. Recently returned from Europe, where he obtained the diploma of pilot from the Aero Club of France, Albert C. Triaca has gathered together an unusually complete series of models of balloons, aeroplanes, aeronautical engines and all accessories. Connected with the staff are many European experts.

### MICHELIN OFFERS \$43,000 FOR AERO RACES.

PARIS, March 2.—A world's challenge cup valued at \$20,000, in addition to \$3,000 in cash, have been offered by M. Michelin for an annual aeroplane race. Though no distance has yet been announced for the first year, it is stated that each year the contest must be held over a distance double that of the preceding year. The trophy will be held by the aero club of the country of which the winner is a native.

In addition to the annual challenge, M. Michelin also offers a prize of \$20,000 to the aeronaut who first travels from Paris to the Puy-du-Dome, a distance of 250 miles, in a heavier-than-air machine. The challenge remains open until 1918. The Michelin factory is located at Clermont-Ferrand, at the foot of the Puy-du-Dome.

## SPENT ON FOREIGN AUTOS.

Americans have spent \$31,728,981 on foreign automobiles during the past six years, \$10,576,327 of this amount representing import duty and freight. Excluding taxicabs, auto 'buses and one amphibious automobile which visited these shores, European makers sent 1,300 automobiles to America during the past twelve months, 225 being from one company, 214 from another, and 139 from a third, leaving 722 cars for 45 different makes, or an average of 16 cars apiece. A comparison with the amount done by American manufacturers for the last five years shows enormous strides. In 1903 the American output was \$16,000,000; 1904, \$24,500,000; 1905, \$42,000,000; 1906, \$59,000,000; 1907 (A. L. A. M. estimate), \$105,669,572. This shows that while foreign cars have increased in numbers yearly from 1902 to 1907, the increase is slight compared with the enormous growth of the home industry; even 1907, admittedly a poor year, having a large increase.

Last year there was a falling off in imported automobiles to the extent of 133, representing a value of \$2,569,141. The banner year for the foreigner was 1906, when 1,054 cars were imported at a value of \$3,972,298. Import figures from 1902 to 1907 are as follows:

Year.	No. of cars.	Value.
1902.....	265.....	\$3,581,990
1903.....	267.....	2,927,508
1904.....	605.....	2,240,000
1905.....	1,040.....	3,972,298
1906.....	1,433.....	5,500,000
1907.....	1,017.....	2,930,859

In addition 283 used and second-hand automobiles, on which no duty was paid, and 231 taxicabs and 10 'buses, on which duty was paid, were brought into the United States during 1907. The total of all foreign motor vehicles is therefore 1,541.



What the Cab Business is Coming To.

Scene outside a London restaurant. Hall porter emerges and blows his whistle vigorously. With the first and second blasts a "growler" and hansom dash up to the kerb, but the porter sounds the whistle a third time, the signal for a taxicab. Disgusted Cabby: "Try four, Old Sport, and p'raps you'll git a bloomin' alry-plane."—"The Car."

## THE AUTOMOBILE CALENDAR.

### AMERICAN.

#### Shows and Meetings.

- Mar. 18-21.....—Rochester, N. Y., New Convention Hall, First Annual Show, Automobile Dealers' Association and Rochester Automobile Club. Bert Van Tuyle, manager.
- Mar. 18-24.....—New Haven, Conn., Mule Hall, Annual Show, New Haven Automobile Dealers' Association.
- Mar. 21-28.....—Toronto, Canada, St. Lawrence Arena, Automobile Show. R. M. Jaffray, manager.
- Mar. 23-28.....—Indianapolis, Ind., Annual Show, Automobile Dealers' Association.
- Apr. 4-11.....—Pittsburgh, Pa., Duquesne Garden, Annual Show, Automobile Clubs of Pittsburgh. Thomas I. Cochran, manager.
- Apr. 5-12.....—Montreal, Canada, Arena, Third Annual Automobile and Sportsman's Show. R. M. Jaffray, Mgr.
- April 6-8.....—Denver, Mammoth Rink, Annual Automobile Show. G. A. Wahlgreen, manager.

#### Race Meets, Hill Climbs, Etc.

- Mar. 18-19.....—Savannah, Ga., Savannah Automobile Club.
- April 6-10.....—New York City, Automobile Carnival, Illuminated Parade, Hill Climb, etc., New York Automobile Trade Association.
- April 24.....—Briarcliff Trophy Race, Westchester County, N. Y. Robert L. Morrell, chairman.
- May 4-5.....—Harrisburg-Philadelphia and Return, 150-mile Endurance Run, Motor Club of Harrisburg.
- May 15.....—Chicago, Algonquin Hill Climb, Chicago Motor Club.
- May 16.....—Hartford, Conn., 200-mile Endurance Run, Automobile Club of Hartford.
- May 30.....—Bridgeport, Conn., Sport Hill Climb, Bridgeport Automobile Club.
- June 24-27.....—Chicago, 1,200-mile Reliability Run, Chicago Motor Club.
- July 6-8.....—Buffalo, National Convention of the A. A. A., and Start of Fifth Annual Tour.
- Sept. 14.....—Chicago, Annual Economy Run, Chicago Motor Club.

### FOREIGN.

#### Shows.

- Mar. 21-28.....—London, Agricultural Hall, Cordingley's Show.
- Mar. 28-April 6.....—Paris, Alcazar d'Ete, Small Inventors' Exhibition.
- Mar. 26-April 4.....—London, Olympia Industrial Vehicle and Motor Boat Show.
- May 17-June 2.....—Moscow, Russia, International Automobile Exposition, Automobile Club of Moscow.
- December.....—Paris, Eleventh Annual Salon de l'Automobile, Grand Palais, Automobile Club of France.

#### Race Meets, Hill Climbs, Etc.

- April 1-13.....—Monaco Motor Boat Races and Motor Boat Exhibition, International Sporting Club of Monaco.
- April 25-May 25.....—Industrial Vehicle Competition, Automobile Club of France.
- May.....—Paris, Competition for Agricultural Automobiles, auspices of "L'Auto." (Date to be announced.)
- May 1-31.....—Automobile Taxicab Competition, France, Automobile Club of France.
- May 10.....—Sicily, Targa Florio, Automobile Club of Italy.
- May 31.....—Russia, St. Petersburg to Moscow Race.
- June 1-18.....—Reliability Trials for Pleasure Cars, Automobile Club of Great Britain.
- June 9-17.....—Touring Competition for the Prince Henry of Prussia Prize, Germany, Imperial Automobile Club of Germany.
- July 6.....—Voiturette Grand Prix, Dieppe Circuit (Automobile Club of France).
- July 7.....—Grand Prix of Automobile Club of France, Dieppe Circuit.
- July 13-17.....—Ostend, Belgium, International Race Week, Automobile Club of Ostend.
- July 20-30.....—Ardennes Circuit Races and Coupe de Liedekerke, Automobile Club of Belgium.
- Aug.....—France, Coupe de la Presse, Automobile Club of France. (Exact date to be announced.)
- Aug. 29-30.....—France, Mont Ventoux Hill Climb, Vaucluisien Automobile Club.
- Sept. 1-8.....—French Voiturette Contest, auspices of "L'Auto."
- Oct. 11.....—Berlin, Germany, Gordon Bennett Balloon Race. Aeronautical Club of Berlin.



## WHAT EUROPE IS BUILDING FOR THE GRAND PRIX

PARIS, March 3.—From what can be learned around the factories, the racers now being built for the French Grand Prix will have a stroke varying from 6.6 inches to 7.08 inches, this latter being regarded as the practical limit for an engine with a bore of 6.1 inches. Panhard, whose three engines are now ready, has adopted the smaller bore of 6.6 inches, for the four-cylinder motors, the horsepower of which is given as 125. Separate steel cylinders with copper water jackets are employed, symmetric valves being on opposite sides. In other engine features the racers follow touring-car models, with Krebs carbureter having hydraulic regulator, centrifugal water pump, honeycomb radiator and disc clutch.

For the first time since 1904, Panhard racers will have chain drive. For the last three years Panhard has built all touring cars with side chains and all racers with shaft drive. This year racers and touring cars will be identical in this respect. The tendency to reduce both wheelbase and track is clearly shown in the Panhard racers, the former being but 104 inches and the latter 51 inches.

Germain, the only Belgian contestant, will, like Panhard, have a full team of four-cylinder cars, with separate steel cylinders copper jacketed. The bore is the maximum, and stroke is declared to be 175 millimeters. Bosch high-tension magneto has been fitted, and engine cooling is effected by means of a centrifugal pump and honeycomb radiator.

Weigel, the only Englishman who competed in last year's race, and received little for his pains beyond interviews with the police, has three interesting chassis under construction for the Dieppe race next July. The four cylinders are in one casting, with valves at an angle of 45 degrees at each side of the domed head. Cylinder bore has been fixed at 154.5 millimeters, half a millimeter being sacrificed in order that there may be no possibility of objection. The stroke is being kept secret, and will not be announced until a few days before the race. The valves, which have a face measurement of no less than 75 millimeters, are so inserted in the cylinders as to decrease pocket area to the uttermost. The exhaust valve is water-cooled round the guide and valve seating, both being part of the cylinder proper. The camshaft, with integral cams, runs in three ball bearings carried in standards cast on top of the cylinders. It is operated at the radiator end by a worm gear and vertical shaft. Wheelbase is 110 inches, transmission is through selective sliding gear, and final drive through rear live axle. The cars are exceptionally low.

Though Edge, of Napier interests, will not appear in the Grand Prix, his cars not being fast enough without forbidden detachable wheels, England will have a six-cylinder representative in the Austin firm. Four cars have been built, all with five-inch bore and stroke, two of them having side chains and two live axle drive. The faster pair will race.

## ROYAL CLUB AND UNION STRIVE FOR POWER

LONDON, March 3.—Though the oblique branch is held out by a section of the British automobile clubs, prospects of an entente between the Royal Automobile Club and the Motor Union, principals in the fight for automobile supremacy in Britain, are not promising. The old-established, dignified and royal club is not likely to make any concessions in national control, and the youthful Motor Union, having realized its strength in the struggle, will not be satisfied until it has a real domination in the automobile affairs of the country.

The entire question revolves around the decisions of the provincial clubs, and the body which can secure the larger affiliation will be the one that will have to be reckoned with as master of British automobile organizations. The Royal Club claims that 12 clubs, with an aggregate membership of 3,113, have decided to remain true to them, while 14 clubs, uniting 1,580 members, will affiliate with the Motor Union. Those having decided to remain affiliated with both Royal Club and Union during 1908 comprise 21 provincial clubs, with a membership of 2,482.

This would appear to give the Royal Club a distinct ma-

jority. Closer examination of the two lists, however, fails to substantiate the first impression, the Scottish and Irish clubs, numerically the strongest in the United Kingdom, being the two which have least need of the Piccadilly club. The probabilities are strongly in favor of the Motor Union already having the larger following, and when the twenty-one clubs have got off the fence there is no doubt whatever as to which body will have a majority.

Could some understanding be arrived at immediately the best interests of the automobile clubs would have been served, for the Englishman, despite his inherent respect for established authority, has shown that he has little need for a mummified controlling body, though it may have the King at its head, the right to use the word "Royal," headquarters in Piccadilly, and a train of aristocratic connections. The struggle has quickened the flow of the royal blood and has made the august body more active, more efficient, than at any previous period. It has not diminished the ardor of the Youthful Motor Union, but it has given that organization a more redoubtable adversary. Unfortunately automobile legislation is neglected as the result of the split.

## INTERNATIONAL ROAD CONGRESS IN OCTOBER

PARIS, March 3.—October 11 and seven following days have been selected as the date of the international road conference to which the French government will invite representatives from all nations of the world. The program of the conference, which is due to the initiative of Minister of Public Works Barthou, is the improvement of roads to fit them for modern methods of locomotion. Two main sections have been formed, the first to deal with road construction and upkeep and the second with traffic regulation and road exploitation under the new era introduced by the auto.

During the week of the congress a public exhibition will be held at the Jeu de Paume in the Tuileries Garden, dealing with methods of road construction, tools and machinery for road building and the suppression of dust, models of vehicles and their influence on road surfaces, sign posts, danger indicators, etc. Models intended for the public exhibition should be addressed to the Secretary of the First International Road Congress, Ministry of Public Works, 24, Boulevard Saint-Germain, Paris. Donatory membership can be obtained on payment of \$20; subscribing members pay \$4.

# THE AUTOMOBILE

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## THE WAY OF A POLITICIAN.

Something out of the usual was the visit of State Senator Frelinghuysen to the New Jersey Automobile and Motor Club for the purpose of "discussing" the proposed amendments to the law which hampers the enjoyment of automobiling in a commonwealth where legislators early recognized the value of good roads. One must admire the sagacity of the Senator in accepting the invitation to meet Jersey autoists last Friday night at Newark, but those present soon learned that all politicians are more or less alike in their methods. The man from Somerset County said that he had come to "learn the views" of the autoists, and, furthermore, he was in a "receptive mood." No, he was not prepared to state positively what action he might take upon certain proposals; he would take them "under consideration."

But one should not blame a man who has an eye out for a governorship because he takes inventory of what he has and then seeks information first hand as to the growing strength of those holding ideas contrary to opinions obstinately hugged by his assured constituency. And the Senator found that there is now an organized and determined opposition to further complacent acceptance of automobile legislation which is based on prejudice and with scant desire to grant fair treatment to the new users of the road.

It is among the possibilities that Senator Frelinghuysen may have accumulated more of a reputation as an anti-automobile autoist—for he is a car owner—than he

really intended, and, in looking after the main gubernatorial chance, he may desire to show that he himself is not inclined to be pronouncedly antagonistic to the law-abiding autoist—providing that same autoist is there with the votes. As a matter of fact there is ground for belief that the Senator is the victim of his Somerset supporters, and is really in a deuce of a fix as to how he can extricate himself gracefully and without loss of prestige. Truly, the position of the politician is such as to entitle him to sympathy rather than unlimited condemnation.

We are told by the Senator that conditions are so peculiar in New Jersey that reciprocal recognition of the licenses of other States is impracticable—for the outlanders wear out the roads, disregard the rights of other users of the highways, and commit other crimes. Elsewhere in this country it is possible to punish outlanders when they are guilty of infractions of the autoing law, even when they only carry the registration numbers of their home States; it is also computed that they frequently leave behind enough money to offset any wear of the roads resulting from their passage. But "conditions" in Jersey prevent similar procedure; therefore, the outlanders are remaining outside of the "Chinese wall" in greatly increasing numbers. Roads do not "wear out" in Jersey as in other States; automobiles "destroy" them; therefore, automobilists ought to pay liberally for the "damage" which they wilfully accomplish.

But there is a limit in suffering injustice because a sane law does not replace an obnoxious statute which exists apparently because the machinery of justice cannot be operated—in New Jersey—in such manner as to punish the guilty without hampering the innocent and making his pursuit of autoing subject to interruption and oppression.

The need of local, State, and National organization in automobiling is emphasized in the New Jersey situation. Its ultimate outcome is a certainty.

The visit of the worthy Senator will bear fruit when another crop of legislation is picked.



## SHORTENING THE MOTOR'S LIFE.

There are two practices, more or less commonly followed by the average owner or driver of a car, that do more to shorten the period of an automobile motor's active life and cause more damage than would be occasioned by many times their equivalent of legitimate service. One of these is racing the motor idle, and the other is the habit of worrying it over grades on the direct drive. Both show a lack of common sense on the part of the drivers practicing them and are far too generally followed, from which it seems that a little technical knowledge bearing on this point would be an aid in keeping many a car out of the repair shop. Of the two, the first is much more common—in fact, it is almost universal, and is the more difficult to overcome, as it does not produce any apparent bad effect at the time, whereas forcing a motor on hills is apt to stall it and this is regarded as a sign of bungling. But both contribute to place the car in the shop far more often than would be the case with more reasonable handling.



## LEWIS F. NIXON ON AUTOMOBILE'S GREAT FUTURE

**S**T. GEORGE, N. Y., March 7.—The annual dinner of the Richmond County Automobile Club, the most successful in the history of the organization, was held at Tilley's Hotel, with Lewis Nixon as the principal speaker of the occasion. His somewhat impromptu address was intensely interesting and listened to with closest attention. It will be remembered that Mr. Nixon was one of the pioneer designers of automobile engines, but the demands upon his time in other affairs took him out of an industry in the future of which, judging from his remarks, he has unlimited confidence.

President Charles A. Schultz presided as toastmaster, and besides Mr. Nixon, the speakers included John T. Burke, managing editor of the *New York Evening Telegram*; Coroner A. F. Schwannecke, who strongly advised automobilists not to run away from any accidents in which they might become involved; Thomas F. Moore, secretary of the Briarcliff race, who supplied the humor of the occasion; H. E. Buel, who talked upon the boulevard across Staten Island; and A. G. Batchelder, editor of *THE AUTOMOBILE*, who dwelt upon the needs of organization for the purpose of safeguarding the rights of automobilists.

At or near the head table sat Vice-President George H. Waters, J. J. Worrell, the indefatigable secretary, and the entertainment trio, consisting of E. H. Poehn, W. O. Sprigg, and Dr. W. J. Musgrove.

The speech of Mr. Nixon will be read with interest by automobilists in general, and it is herewith given nearly in full:

As to the future of the automobile, probably we can best speak of that by looking at what has been done in the last few years. Probably nothing has been done by mankind in the mechanical world which compares at all with the automobile. It is probably the modern miracle—certainly the one of the century. We now feel that we can travel an ordinary highway with the safety of the railroad train, and with even as much comfort. We feel that it is dependable; we feel that mankind has accomplished a thing in a way which it always does when the mind of man is put to it.

The automobile is, of course, new. In 1900 there were but 3,700 in the United States. In 1904, Americans built over 11,000, and last year over 52,000. There are to-day in this country 152,000 automobile owners. These machines cost to run not less than \$75,000,000 per year, and the actual value of them is \$270,000,000. All business in the country has been stimulated by this industry. Not only that, but the most encouraging thing is that while a few years ago we were obliged to go abroad for our cars, to-day we find ourselves in this country exporting large numbers of cars of every description to other countries.

We know that the American always will develop the very best when he has the opportunity. We all know that years ago the man who worked in the bottom of the ship or in the factory—the man in the overalls—was looked down upon. But to-day we find an entire change, and men who do not have to do that kind of work will go at their automobiles and get themselves well smeared with grease, and are proud of the fact that they have a mechanical knowledge sufficient to enable them to do their own repairing. And this fact is increasing a feeling of respect for the mechanic, and, perhaps, there is nothing that we can bring about in this country that will operate to the advantage of the country more than this feeling, joined with an appreciation of what the mechanic and the engineer are doing for the benefit of the world, and the improvement of all mankind's condition.

Now, it is very hard to forecast the development of an industry and of an art which is increasing by such leaps and bounds the way automobiling is. But we have yet to see the time when the car will be the accompaniment of every home, when people will see that they must have them the same as they have the horse and buggy. Of course, we must always have the horse and buggy. I was looking in an automobile paper to-day, and I saw a description of an automobile buggy, and I thought as I read it: "The world has come into its own; here we have a buggy which can with safety run 30 miles an hour, that will cost \$250, and that will probably compare very well with the old buggy, and with less expenditure for running than with a horse."

There has been a time in the last few years when the joke against the automobile on the stage would bring down the house. And we all laughed. But I tell you to-day that it is to be depended upon. We have accidents that occur through carelessness and ignorance and inefficiency in management, but as a matter of gen-

eral interest we can say that the automobile is now rapidly approaching a perfected state. Then, of course, we find those who are always looking for trouble, and they say that the automobile is affecting the farmer. I don't think so. Ten years ago there were about 14,000,000 horses in the United States of the average value of \$30 each, while to-day there are 20,000,000 horses in the United States of an average value of \$93 each; in other words, an increase in value in ten years of a little over \$30 to \$90 per horse; so I don't think the farmer has shared very badly in increasing a value of \$450,000,000 to \$1,800,000,000 in ten years. I won't say the automobile has done it, but it has driven people to buy the very best of horses.

The use of the automobile at the beginning was naturally more for pleasure, but its rapid increase for business purposes can plainly be seen. Colonel Waring, who was superintendent of the Street Cleaning Department of New York City, told me that there were each day 500 tons of horse droppings in the city of New York alone, and he said that he hoped to see the day when the automobile would supersede the horse in the streets of the city. That was a good many years ago, but it is rapidly approaching, and the trucking that is now being done by auto trucks is enormous. Undoubtedly before very long you will not see a horse in the city of New York. The increase in the health of the city when it comes about will be enormous, and I do not think it will affect the earning capacity of the men who are experienced in loading and handling the present trucks. The automobile's use by big department stores is enormous, as you know, and I think the ultimate result will be that they will have bodies which will be made separate from the chassis, and which, after being loaded, can be placed upon the chassis quickly, and when they come back the empty body will be replaced by another which has been loaded in the meantime, thus decreasing the cost of handling and keeping the apparatus always on the go, which is the aim of all business economy.

The luxurious car will always be in demand. Then again we have the car which will be built and sold at a cost to meet the pocket of the average man, and which will cost little to repair and to operate. In this respect our lawmakers do not seem to rise to the occasion, and realize that we are rapidly increasing the price of gasoline, which seems to be the only present commodity we can use for fuel.

In fuel we must face a scarcity in gasoline and a rapid advance in price. But there is one inexhaustible source uncontrolled by owners of mines or corporations. That is alcohol. Anything that will ferment will make alcohol. The grain, rotten apples, pumpkins, grapes and other products of the farm will go into tanks and the farmer will produce a fermented liquid that can be refined at central stations into high-grade alcohol. The law regulating the production of alcohol was not intended to make it commercially obtainable. In Cuba alcohol can be bought for 10 cents a gallon. The people will ultimately wake up and demand proper legislation, and it is not a far stretch of the imagination to see us light our houses, heat our dwellings, cook our food and run our cars and factories by alcohol produced by the American farmer.

Where we are tied down by rail you will find that the automobile car is coming into rapid use. They are building cars to-day about 65 feet long which will easily make sixty miles an hour and which are fitted up with all the various comforts that go with the steam car. They will come into use more and more. We expect it.

When we look into the future and stimulate our imagination, we can see that the needs of the people will bring about an aerial system of transportation. We know that the aeroplane will be used, and we shall then be able to get to Philadelphia at a rate of 160 or 170 miles an hour, traction being by some special method.

The development in war is another feature of the automobile. The flying machine which leaves the earth we can look forward to seeing. It is the necessity of modern civilization, and it will be used in the next war undoubtedly. But we have torpedoes that we use under the water, and we will also undoubtedly have land torpedoes. These will be in the shape of the original automobiles, and these will be filled with high explosives and controlled by paid-out wires or wireless.

All these things are only some of the little forecasts that are to be seen at the present time as the future of the automobile. The greatest good to the people comes by our getting all we can out of our lives, and that is naturally to our advantage. I have no doubt but that the men of the present day do more work than in the past; they get over a great deal more ground and accomplish a great deal more.

Many devices having to do with automobile construction are being radically improved or bettered. Carbureters and tires are receiving the attention of the inventive minds and appliances for lessening the danger of accidents of all kinds are of almost daily birth.

Then, again, as to the roads. We still have the bogs and mires

between small towns, but, I think, as our needs in this direction grow, we shall have all of these communities joined by very wide roads, which by means of short-time franchises will warrant those holding such franchises constructing substantial roadbeds, certain parts of which will be limited to automobile traffic. I think the people will take the initiative and give us the blessing that good roads will give us. I believe that the enterprise and the public devotions of the officers of this borough of Richmond have built up the highest state of roads I have ever seen. I do not believe you can ride over any other roads with more pleasure than you can on the roads of Staten Island. Take, for instance, the idea of a boulevard to Tottenville from the ferry. You will find that such a run would attract the automobiles from all over.

And that brings me to what I want to say particularly, and that

is, I want to ask every one to appreciate what has been done by this club, and by the president and secretary of it, Mr. Schultz and Mr. Worrell. They have been whole-hearted and devoted to the interests of the club and the safety of automobilists in general, and I believe that the time will come when we will see an automobile clubhouse on Staten Island. I am sure that the island will grow—it is growing—and as the automobile will become more and more part of our life we shall find the needs of a clubhouse with a garage. We shall see that the automobilists will awake to the occasion and realize that it is incumbent upon them to support the club in every way possible, and that its ambition will be realized, and we shall have on this beautiful Staten Island not only an automobile club, but an automobile clubhouse, with Mr. Schultz as permanent president of it.

## NEW JERSEY'S LAW "DISCUSSED" WITH SEN. FRELINGHUYSEN

NEWARK N. J., March 9.—The automobilists of New Jersey are still discussing the visit of Senator Frelinghuysen to the New Jersey Automobile and Motor Club on Friday night of last week. This wide-awake organization invited the Senator from Somerset county to attend an open session at its clubhouse, to which were also bidden delegates from other Jersey clubs. The club's quarters on Broad street were packed to suffocation and both the present law and the proposed amendments to it received vigorous attention all around. Ultimately those present took action as outlined in the resolutions herewith given:

**Resolved,** That this club is in favor of a law which will require that every vehicle using the highway shall carry a light at night, and pledge ourselves to support such a bill by endeavoring to secure the support of our Representatives and Senators to that end.

**Resolved,** That this club is in favor of the amendments as presented by Senator Frelinghuysen to the crimes act in reference to placing glass or other hard substances upon the highways, and refunds to the State of fines inflicted by local justices.

**Resolved,** That this club is in favor of a tourist privilege to be extended free to non-resident tourists, provided they are duly licensed in their home State and carry sufficient identification tags to insure compliance with the laws of the State of New Jersey.

**Resolved,** That this club is irrevocably opposed to the license fee proposed to be assessed against the automobilists and dealers of this State, and unless a fair and equitable schedule be substituted therefor, this club is authorized to contribute its proportion to the general fund for testing the constitutionality of a law which permits high and prohibitive double taxation under the cloak of license or registration fees.

**Resolved,** That it is the sense of this meeting that licenses being granted in perpetuity to manufacturers or dealers in automobiles, as provided for in Part IV., par. 16, sub-division 3 of the present automobile law, no other law can be enacted or tax levied for the purposes as outlined in said law, and any effort on the part of members of the Legislature to annul this provision will be vigorously opposed.

**Resolved,** That it is the sense of this meeting that the department of motor vehicle registration and regulation shall remain under the jurisdiction of the Assistant Secretary of State, as at present provided.

**Resolved,** That this club is in favor of a reasonable and safe speed limit consistent with the circumstances, and which will fix the maximum speed at not greater than thirty miles an hour, such provision to be drawn in such a way as will provide for the safe use of the highway by all, and which will command the respect of every user of the highway.

**Resolved,** That if the present amendment be not so amended as to secure to the automobilists of this State reasonable and fair treatment, the legislative committee of this club be authorized and empowered—in conjunction with the other clubs of this State—to prepare and present for passage a fair and reasonable automobile bill based on common sense and the lines as have been adopted in many of our sister States.

**Resolved,** That a vote of thanks be extended to Senator Frelinghuysen for his courtesy in attending this meeting and for the frankness with which he has expressed himself in reference to the subjects under discussion, and that the secretary be instructed to transmit to Senator Frelinghuysen copies of the resolutions adopted at this meeting, with a request that he endeavor to have the present automobile law amended so as to meet with the approval of the automobilists of this State.

It will be seen by the reading of the resolutions adopted that the automobilists and Senator Frelinghuysen are at a considerable distance from each other in reaching an agreement. The

discussion made plainly evident the fact that the Senator has political aspirations which may have a bearing upon his automobile law-making, though he took occasion to repeat several times that politics did not enter into the matter in the slightest degree.

There was some other plain speaking by George A. Post, of the North Jersey Automobile Club, who said that he intended to offer a reward for the arrest of Senator Frelinghuysen for violation of the speed limit of the present law. Dr. J. N. Faulkner, also of the Paterson club, asked the Senator if he had ever violated the 20-mile speed ordinance.

"I might ask the doctor the same question," responded the Senator.

"Answer mine first," retorted the physician.

"Never willfully, and not knowingly," was the answer from the Senator, which was greeted with laughter. Dr. Faulkner's only answer was that he had heard that the father of the automobile law traveled faster than twenty miles an hour every time he went out in his car. "He ought to know by this time," said the doctor, "that it would be impossible to keep within the limits."

The autoists argued that the speed law was openly violated, and they openly admitted that they all violated it repeatedly when they operated cars that could travel at a fair rate of speed. Joseph H. Wood, who introduced the resolution providing for an increase in the speed limit, admitted that he was a law-breaker, and produced a record of his runs through the city at an average speed of from ten to sixteen miles an hour and from eighteen to twenty-six miles in the country. Mr. Wood said that he has never been arrested, and although he had traveled as much as 35,000 miles, he had done no damage. He said that it was impossible to maintain an average speed of twenty miles, and every operator of an automobile, not even barring Senator Frelinghuysen himself, was a law-breaker. Mr. Wood said that the New Jersey automobilist has practically been crucified upon the cross of political ambition of a few legislators.

Richard C. Jenkinson stated that the Newark Board of Trade was interested in the question from an industrial standpoint, and said that the automobile industry was of vital importance to the city and State from the fact that every part of a motor car was manufactured here and that thousands of people were kept employed.

President Mason, of the Passaic Board of Trade, was another who struck the bull's eye many times, according to those present. A. G. Batchelder, who recently became a Jerseyman, illustrated the attitude of non-resident autoists toward the State on account of its unfair law.

Senator Frelinghuysen defended the present statute and its non-reciprocal license feature, and otherwise spoke favorably of it. He said he would take "under consideration" the various things suggested, and asked for a copy of the minutes of the discussion, so that he could "confer" with his associates in the legislature. The opinion of the automobilists generally is that the day for conferring is past, and it is among the probabilities that if necessary the war will be carried into Somerset county.



## VIRGINIA AND CAROLINA AUTOISTS AFTER GOOD ROADS

By F. S. SLY, TRAVELING CORRESPONDENT OF THE AUTOMOBILE.

NORFOLK, VA., March 4.—Considerable activity is being displayed by the Norfolk Automobile Club in the agitation for good roads, particular attention being paid at the present time to securing a good road between Richmond and Norfolk and between Norfolk and Virginia Beach. A bill is now before the State Legislature providing for the appropriation of \$250,000 for State aid in road building.

The Norfolk Club, with a membership of fifty, has opened a campaign for new members. The officers of the club are: President, Abbott Morriss; vice-presidents, F. O. Smith and D. P. Paul; secretary-treasurer, C. L. Young.

Most of the cars in the city of Norfolk are used for pleasure only and are laid up in Winter. There are two reasons for this: the roads around Norfolk are very bad, and public and private garages are thin, frame buildings, affording no protection against freezing. There are two public garages, Harmon's and the Rambler, both with good repair shops; in addition there is one shop undertaking repairs only. There appears to be a splendid opportunity for a good brick garage here. Places of interest within twenty miles of Norfolk are numerous, especially along the shore. The country has no hills at all and only a few ten-foot rises.

Practically all kinds of automobiles are used in Norfolk, the most prominent makes being White, Rambler, Ford, Mitchell, Franklin, Peerless, and Oldsmobile.

Virginia Beach at some seasons of the year supplies an excellent course for ocean "breezing." But for racing the beach did not answer satisfactorily.

GREENSBORO, N. C., March 9.—Though automobile conditions are far from ideal in North Carolina, roads still being in a very elementary stage, Greensboro has about forty-five cars in regular use. The city does not yet possess an automobile club, though two garages and three agencies are maintained. The Greensboro Motor Car Company, with agency for the Ford line, possesses the best garage; the Caroline Motor Company, with agency for the Buick, has also a garage. Reo cars are handled by H. L. Hopkins.

Road conditions are bad in this neighborhood, the surface being formed of heavy clay. Steps, however, have been taken for the construction of a large amount of macadam road, 170 miles of improved highway having already been built and 40 more being under construction. Much of the road building in this section of the country is done with convict labor.

WINSTON-SALEM, N. C., March 10.—About eighty automobiles are owned in Winston-Salem. The formation of a club has been discussed on numerous occasions, but no definite move has been made up to the present. The majority of the roads in the county are of the clay variety, and consequently have little that is inviting to automobilists. Considerable activity, however, is being displayed in the construction of improved highways, the county having already done a large amount of work in this direction.

Maxwell, Cadillac and Buick are represented in the city, their respective agents being Winston Automobile Company, Forsyth Sporting Goods Company, and P. Somers. The two former maintain garages.

### INDIANAPOLIS NEARING THOUSAND MARK.

INDIANAPOLIS, IND., March 9.—From a complete examination of the registrations filed with the Secretary of State, a local authority finds that there are about 800 automobiles in the city of Indianapolis. It is not reasonable to suppose, however, that all automobiles in Indianapolis are registered, due to the fact that the police have never made an effort to enforce this phase of the law.

The Premier, manufactured by the Premier Motor Manufacturing Co. of this city, stands at the head of local registrations. Other Indianapolis manufacturers show up well, and touring cars predominate, the majority of runabouts being used by physicians, salesmen and people in moderate circumstances. More than 25 per cent. of automobiles used in the city were manufactured in local plants.

The comparison made was taken from 5,000 automobile registrations, showing that about 16 per cent. of the automobiles in Indiana are owned in Indianapolis. City officials who have sought to enforce the city license ordinance have usually estimated that there were 1,200 automobiles in Indianapolis, or that about 25 per cent. in Indiana were owned in the city.

The number of automobiles in the city have more than doubled during the last three years. Until the close of the 1904 season there were barely 300 cars in the city, and they are now increasing from 150 to 200 a year. Indications are that at the close of the 1908 season there will be at least 1,000 automobiles in Indianapolis.

Automobiles having the greatest representation in the city are: Premier, 83; Cadillac, 61; Pope Waverly, 51; National, 51; Ford, 48; Olds, 40; Maxwell, 37; Autocar, 32; Marmon, 31; Rambler, 28.

Roads improvement has been marked in Indiana during the last two years, and the farmers particularly are now favorable to the betterment of the highways.

### PENNSYLVANIA AUTOISTS IN COUNTRY TOWNS.

PITTSBURGH, March 8.—A careful investigation of automobile conditions in Pennsylvania shows that a majority of the 8,717 cars now in use in the State are owned by people living in the so-called country towns. It is in these towns that the automobile has come into general use for real service, while in the larger cities it is still largely a luxury and kept for show. There is not a good-sized town in the Keystone State which has not now from one to a half-dozen flourishing automobile agencies, and this year promises to be a much better season for these dealers than for the agencies in the big cities of Pittsburgh and Philadelphia. Second-hand machines are already in great demand, and the moderate priced 1908 cars are selling much better than one year ago.

Under the direction of Thomas I. Cochran, preparations are going ahead rapidly for the second annual automobile show of the Automobile Club of Pittsburg, to be held in Duquesne Garden in April. The Old King Cole Papier Mache Company has the contract for a large part of the decorations, which promise to be the finest ever seen in the Garden. Large eagles, speed wings, paneled ornaments, massive shields, and eagles will be seen on the marble pillars, and there will be ornamental balustration around the first floor.

### BAR HARBOR AGAIN AUTOMOBILELESS.

BAR HARBOR, ME., March 9.—By an overwhelming majority, Bar Harbor has voted to be an automobileless Eden during the coming season, as it has been during the past year. It is situated in the town of Eden, and at the annual meeting of the latter the vote stood 415 to 174 against permitting automobiles to run on what is known as Bay View drive, so that the atmosphere of Maine's chief summer resort will be free from the taint of half-baked gasoline and its roads unmarred by the track of pneumatics.

## SAVANNAH'S MEET WILL HAVE SPEED IN ABUNDANCE

SAVANNAH, GA., March 9.—Record speed is anticipated in the two-day races on the Savannah course, March 18 and 19. During a recent practice spin one of the entrants for the 360-mile contest traveled at the rate of 86 miles an hour for a distance of five miles on the flat, speedy course, and has made the inhabitants of the district certain that the Ormond record of 77 miles an hour will be beaten. Edgar Apperson, entrant of one of the first cars, gives it as his opinion that the course is the fastest in America.

Among those now practicing on the course are the drivers of the Isotta-Fraschini cars, five Appersons, and a six-cylinder Thomas Flyer. Everything is now ready for the race, and so much has interest increased that a number of additional entries to the seventeen already received are expected.

A race within a race that is attracting considerable attention is the \$1,000 challenge between the American roadster and the Apperson Jackrabbit. Both machines are reputed to be very fast, and are so evenly matched in power as to assure a very keenly disputed race. Either George Robertson or Herbert Lytle will be at the wheel of the Apperson. The American will be piloted by its designer, Fred I. Tone.

As a last step preparatory to the races the Savannah Automobile Club has become an incorporated body. Among the incorporators of the club are Mayor Tiedeman, Chairman of Council Richard J. Davant, who is chairman of the executive committee having the races next week in charge; President W. W. Williamson, of the Chamber of

Commerce; President Wright Hupnter, of the Board of Trade; Alderman Frank C. Battey, president of the club, and other well-known Savannahians. At the organization meeting of the club Mr. Battey was re-elected president and Arthur W. Solomon, secretary and treasurer.

### Pullman vs. Studebaker: Philadelphia to Savannah.

PHILADELPHIA, March 9.—Somewhere between this city and the Virginia-North Carolina line two local cars are floundering through the mud at a two-miles-an-hour clip in an endeavor to be the first to reach Savannah. The New Year's endurance run clean score Studebaker, whose owner has been carrying a big chip on his shoulder ever since that event, found an opponent almost at the last minute in the Pullman "Forty," after having made all preparations to start alone. The new conditions required some hustling, but after a slight squabble over the number of drivers to be carried and the fact that the Studebaker was a 30-horsepower touring car and the Pullman a 40-horsepower roadster, and a little delay in securing official observers, the two cars were sent away from the Hotel Walton at 8:30 A. M. Wednesday last. Heard from last Saturday, the Pullman was about 20 miles in the lead, between Fredericksburg and Richmond, the Studebaker having just arrived at the former place. It took 40 hours, six horses and two negro drivers to get the Pullman over the 50 miles between Centerville and Fredericksburg—about a mile per gallon of gasoline.

## A. L. A. M. MECHANICAL BRANCH ADOPTS STANDARDS

AFTER an interval of three months, during which a special committee had been experimenting and investigating, an unusually important meeting of the Mechanical Branch of the Association of Licensed Automobile Manufacturers was held Tuesday at the Transit Building, New York City, the results of which are given out in the following official report of the meeting:

The special committee appointed to work with the Test Committee toward the standardization of rod and yoke ends, made an elaborate report on what it considered the proper sizes for the standardization of these important parts of construction. Standards for 3-8, 5-16, 1-2 and 7-16 rods were adopted and will be known as the A. L. A. M. standard adjustable rod and yoke ends. With the adoption of this standard, the manufacturers of rods and yoke ends will carry in stock a full line of the standards adopted so that users of the sizes which have been adopted may be able to buy in the open market such sizes necessary. This is of particular benefit to the user as the parts will be interchangeable, and the rods of one car will do for another.

Another important standardization was that of levers. Various weights and sizes of levers have been used with a considerable expense to those automobile manufacturers who do not have drop forging plants. Owing to their inability to buy stock levers, they must necessarily buy the dies from which these forgings were made and with the changing of the type or weight of the lever, new dies, at an increased expense, are necessary. After careful consideration, the Branch adopted a uniform modified I beam lever, which the drop forge makers will carry in stock.

The committee appointed to report on the standardization of rims felt that the time was not ripe for a universal adoption of the standard rim, owing to the fact that it was impossible to tell whether the clincher or demountable rim would be in vogue. The use of spare wheels instead of demountable rims was given consideration and the Rim Committee empowered to make a further investigation on this matter.

At the afternoon session, Dr. Charles Edward Lucke, of Columbia University, who has been making some very exhaustive tests with alcohol as a fuel for internal combustion engines, delivered an address to the Branch. Dr. Lucke's remarks were principally in making comparisons in the tests he had made with the use of alcohol for gas engines for locomotion as compared to those for stationary

use. He pointed out clearly to the Branch that with certain types of engines he could start with alcohol as easily as gasoline, by the use of a spray carburetor with the ordinary needle valve. He said that he did not feel that the time was opportune for a universal adoption of alcohol for practical use, especially in automobile engines, owing to the absolute necessity for a minute adjustment of carburetor and ignition which could not be had in automobiles, owing to the inexperience of many drivers and owners.

E. R. Hewitt, who has been experimenting with alcohol for commercial purposes, gave some interesting data on the results of his work. Mr. Hewitt adapted an engine to the use of alcohol for a five-ton truck. On gasoline with a full load 41-2 miles on a gallon of gasoline could be had. On using the motor without readjustment, only over two miles per gallon of alcohol could be gotten, but on raising the compression from 75 to 120 pounds, he was able to get over five miles to the gallon of alcohol. He pointed out that it was necessary in this case to place the carburetor as near the engine as possible in order that the mixture would be sent into the cylinder not less than 72 degrees. In cold weather he was able to overcome the loss in the vaporization by surrounding the in-take pipes with the water jackets which kept an even temperature for the vapor until discharged into the cylinder. It was the consensus of opinion that for commercial work alcohol, in the near future, would be the most economical fuel to be used. An interesting lecture on the use of pyrometers for indicating and recording the heat temperature in treating steel, was delivered by W. H. Bristol and Charles Engelhard.

The session closed with the annual election of officers. This resulted in a unanimous re-election of the present incumbents, which were: A. L. Riker, Locomobile Company, chairman; Coker F. Clarkson, secretary; Henry Souther, metallurgist with H. E. Coffin, Thomas Detroit Company, chairman of the test committee. Those present were:

John A. Baumgardner, Autocar; A. N. Manross, Corbin; H. P. Maxim, Electric Vehicle; J. H. Becker, Elmore; John Wilkinson, Franklin; Charles Lohr, Haynes; E. R. Hewitt, Hewitt; H. G. Farr, Knox; E. F. Russell, Locomobile; Charles R. Greuter; V. N. Gunderson, Northern; Geo. B. Dunham, Olds; Allem Loomis, Packard; L. H. Kittredge, Peerless; David Ferguson; Robt. Jardine, Royal; Alden Sampson, 2d, Sampson; E. T. Birdsall, Selden; Henry Hess, Stearns; John G. Utz, F. P. Nehrbaas, Thomas; F. D. Howe, Waltham; C. D. Smith, Winton; Henry Souther, metallurgist; A. L. Riker, chairman; Coker F. Clarkson, secretary.





Captain Hans Hansen, ex-De Dion Pilot, Meets Roberts and the Thomas Car on Which He Will Continue to Paris.

### AMERICAN INCREASES LEAD IN PARIS RUN.

Rapid progress has been made through Nebraska and Wyoming by the American contestant in the New York-Paris run, the Thomas at the end of the twenty-seventh day being more than 300 miles ahead of its nearest competitor. Montague Roberts made a fast sprint of 105 miles into Cheyenne, there turned the car over to E. Linn Mathewson, and returned east to fulfill his racing engagements. It is now certain that the leaders will push ahead under their own power to San Francisco, instead of being shipped from Ogden to Seattle, as originally announced. Captain Hansen, who started as pilot of the De Dion, and was unable to work in harmony with Saint-Chaffray, has joined the Thomas car and will continue with it to Paris.

The French De Dion has had a vein of ill-luck since its Norwegian pilot threw up the command. After five days lost at Cedar Rapids making repairs, the car set out only to break down again at Omaha, where it will be held at least three days more. The driving shaft was broken in the run through Iowa; repairs made in local shops proved unsatisfactory, and it will be necessary now to wait for spare parts shipped from France and already received in New York.

The Italian Zusta, after repairs in the Union Pacific shops at Omaha, Neb., is pushing ahead rapidly, has now left the De Dion 360 miles behind, and with promise of better roads ahead may diminish the distance separating it from the American car.

Changes have taken place in the composition of the Protos crew, Engineers Hans Knappe and Ernest Maass having abandoned and returned to Europe, after a disagreement with Lieutenant Koeppen. The two army officers put forth as their grievance that Lieut. Koeppen, a passenger and newspaper correspondent unacquainted with automobiles has been receiving all the glory and monopolizing all attention.

Charles Godard, who has been awarded the title of "Baron" since going west, is playing a trailing game, being now about one thousand miles behind the leader. He has met with frequent mishaps, complains of excessive charges, the bad roads, and has asked and been refused permission to ship his Motobloc on the railroad. Mileage for the last seven days is as follows:

Car.	Country.	day. 22d	day. 23d	day. 24th	day. 25th	day. 26th	day. 27th	day. 28th
Thomas (America)	.....	1,536	1,627	1,767	1,908	2,052	2,109	2,206
Zusta (Italy)	.....	1,458	1,467	1,488	1,536	1,536	1,690	1,878
De Dion (France)	.....	1,262	1,262	1,262	1,262	1,313	1,331	1,331
Protos (Germany)	.....	1,043	1,043	1,043	1,078	1,118	1,181	1,262
Motobloc (France)	.....	1,043	1,043	1,043	1,093	1,101	1,101	1,101

### BLAZING THE WAY FOR THE ZUST CAR.

By JOHN W. BREYFOGLE.

"Everybody out, please. Now, gentlemen."

"Ze oil? Oui." Purr-r-r, bang. "C'est très mauvais."

"This the German car?"

"Naw. Can't you see it's built in R——."

"What you mean by Gearless?"

"Go to"—wrr-r-r, bang, bang, pop, s-s-s.

Silence for a moment, then from aloft, a fierce-eyed figure in Turkish veil and nightgown roared, "Get out." More silence, then an awed whisper:

"That's Hansen; he's the fellow that went to the North Pole."

"Taint Hansen; he's with the Ger——" Bang, bang, bang.

"What time you lave?" "How much horse,—frict—drive,—how," pop, spt, whirr, r-r-r bang. Then somebody thought of the hose and we had peace.

They did not exactly leave the dinner table of the Geneva Club. They faded away, each with the be-back-in-a-minute air, but straight to the garage they went and tuned, tuned, tuned; each with one ear on the other fellow's motor and smiling like a dozen women after the same hat.

Something was going to be doing on the morrow. "Let us continue together," said Saint-Chaffray. "Let us follow the beautiful pilot car; we shall enter Rochester together like brothers; the flags shall entwine, it shall be a glorious." "Sure," said Ruland, as Sirtori grinned. Roberts merely tuned. It was nearing Buffalo and entwining was bad business.



Gearless Pilot Car Which Broke the Way for the Zusta.

When we hauled up at the roadside to await Zusto, no one knew it for the beginning of a long winter trip. Like the Great Harry she came—the Zusto—high of poop and low of stem, thundering broadsides across the snow waves, and the Gearless dived for its place and the trip was on. Soon we made up the two miles the tardy one had lagged behind and caught the leaders only to see the Thomas disappear in the distance, while De Dion blocked the road in a drift. Then came the grinding of a chain guard in a sprocket, a broken radius rod, and the "Great Harry" limped into Rochester to the home of its pilot for repairs.

#### Midnight Adieu, then a Plunge into Snow.

It was the following midnight as Zusto said her goodbye to the crowd of Italians who had hung for days around the Four Corners and Powers Hotel, and started over the crackling snow in the pilot car's wake. It was cold. At least we thought it was cold then. We were to acquire knowledge later. Following the frozen Genesee on through Scottsville and LeRoy, the old, old way, but oh! so different in the frosty moonlight, we arrived at Batavia and found—nothing. The Buffalo pilot car was not. Doubtless they were awaiting at the city line with the city keys and glad hand, but at that point there was naught but an Owl car, and the attendants of the garage whom we aroused merely replied to our queries about Thomas and De Dion with the one word, "wented." So we went likewise, and at once, to discover at Silver Creek that there was much pother in the Sleeping City, hasty repairs, curses and mighty preparations for pursuit. Finding ourselves in the lead, we cut the pace to decency, with visions of Ashtabula as the night's stop. But Ashtabula turned Ripley and more radius rod repairs when, after another all-night job, we again took the road. De Dion and Thomas were seventy miles ahead, and crippled Zusto lost steadily to Cleveland, one hundred and twenty-seven miles behind.

To Cleveland the way had been normal and lacking in any special characteristic, but beyond in the storm lay a land of romance. At midnight when the long dark rows of houses seemed a continuous prison wall, when the snow drifted over the deserted streets, covering the car tracks like a ragged garment, when the lights burned dimly like tapers upon ancient graves, when no living thing stirs, when the snow mounds seem to cover the debris of a long ruined city and all is deserted and cold—in such a night to start for nowhere is dismal. Once the lights of Rocky River were behind, there were no others, nor was there a road. Mile after mile the cars ploughed a trackless, rolling plain, undistinguishable from the fields which skirted it. Houses fell to ruins. Twice only we paused, once as the pilot car fell into an unseen hole beneath the snow, and once again to tighten a clutch, upon which we worked by dim lamp-light like ghouls, while the snow muffled all sound; then on again.

Noon brought Toledo and breakfast, and a counsel, as we took stock of our forces; things were beginning to be a bit lazy by now. Ruland had had no sleep, save in the car, since Rochester; Wilcox was down with the grippe and the rest of us wobbled a trifle in our walk, but Thomas and De Dion were still ahead, so we decided to continue.

Before, the snow had merely been a discomfort, but now it began to be a hindrance, and the further we went the more hindrance it became. Thirty miles out, at Wauseon, after six hard hours, the good innkeeper brought forth hot coffee and hot "dogs," and a storekeeper opened his storé, and such a buying—overcoats, shirts, gloves, boots and socks.

It was some four hours later that we encountered that strange hill in the road. It began just under the radiator and went up and up, but the most peculiar part of it seemed to be that we could not catch it. How far we chased it no one can tell, but finally we got our front wheels on it. Just then the lights went out. When they came on again, the writer was draped over the back of a seat and Shannon was at the wheel. I know perfectly well what brought me to—it was the absence of Zusto's strange popping exhaust, and upon looking back all was darkness. Five miles behind; when we got there the matter stood explained.

Sirtori had met that strange hill, too, and Zusto was in as nasty a snow ditch as was ever seen, and careened until her gasoline would not flow to the carbureter. For two immortal hours the Gearless tugged at that seventy-five hundred pounds of ditched dead weight and inch by inch drew it into the road; then, without stopping for breath, we tumbled in and arrived in due time at Bryan. That was a fine town, that Bryan, and it sported two hotels, but one was too fatigued to furnish breakfast and no one could find the other, so we untangled the local whiskers from out our machinery and moved on.

#### Strenuous Driving Brings Its Reward.

Night, our third of continuous driving, overtook up in the wilds. We were in Indiana, and knew it, too, by now. It was here that Ruland produced those famous frozen eggs, which we thawed out and ate in great gulps. We had now, at 8:00 P. M., been driving sixty hours continuously, save the two hours Sirtori and the writer napped it at Cleveland, but sleep was far from us, for we were nearing Kendallville and there were Thomas and De Dion. Averaging three miles per hour, we continued, ramming snowdrifts and digging ourselves out. At midnight we met our worst drift and here things became serious, for after being in it for two hours, we began to have trouble keeping each other awake; then, too, the drift made faster than we could dig it away. Finally we ahead grew desperate, and jumped and plunged with the Gearless until the drift opened and we passed on our way, arriving and basking in Saint-Chaffray's smile at 3 A. M., after sixty-seven hours on the road, and after reducing the one hundred and twenty-seven miles to a bare eleven; for the Thomas, at our approach, had left in the night and moved to a little town ahead. The remainder of the trip was uneventful, snows were deeper, going was harder, but we slept and ate, joined mostly with De Dion and content to travel with our friends. Zusto lost a full day at Kendallville, due to no other cause than that at New York in the custom house, the car stood with full radiator and, in spite of repeated protests, none were allowed to touch it. The result was a frozen radiator, which split across the top.

Without sleep, without food, fierce looking, wild-eyed men. Ahead a long red demon and behind the "Great Harry," filled with untamed Cossacks, and barking defiance across the land. And these men and this great ship on wheels, this seventy-five hundred pounds of car, clothing, rifles, provisions, parts and even tallow candles, twenty pounds of them, are to cross the world and tackle the Polar. Oh! the wonder of it, the wonder of it.

#### FOREIGN TOURING LITERATURE BY MAJA CO.

Foreign touring becoming more and more popular among automobilists, the American branch of the Maja Company, Limited, has added a publication department to its touring bureau, and will shortly publish a very complete "Guide Book to European Touring," by E. B. Gallaher. The work outlines a large number of touring routes throughout Europe, in conjunction with a series of modern maps, gives a full list of agencies, garages, hotels, official stopping places, information regarding shipment of cars, custom details, police regulations, and local and governmental laws throughout Europe. Reproductions of the forms which must be filled out for all licenses and other applications are included.

#### PARIS POLICE WAITING FOR FRENCH DRIVER.

PARIS, March 2.—Interest in the New York-Paris "race" in the French capital is confined almost entirely to the columns of the *Matin*. All other journals, technical and otherwise, criticise and ridicule the event. Several papers state with sarcasm that Godard's reason for remaining in the rear is that he has been condemned since his departure to eight months' imprisonment and the repayment of 5,000 francs obtained under false pretenses during the Pekin-Paris run.



## BUFFALO'S SHOW VERY ATTRACTIVE AND SUCCESSFUL

**B**UFFALO, March 9.—Broader in scope, better in exhibits, and more beautiful from the artistic viewpoint, the sixth annual automobile exhibition of the Automobile Club of Buffalo and the Automobile Trade Association opened in Convention Hall to-night under most auspicious circumstances. If the tremendous crowd which attended to-night is to be accepted as a criterion of the week, the automobile show of 1908 will go down in history as a success from the commercial, financial and social viewpoint. President Frank B. Hower of the Automobile Club, President John A. Cramer of the Automobile Trade Association, and Secretary D. H. Lewis of both organizations, were unanimous in their expressions of satisfaction over the arrangements and the prospects for the show during the balance of the week. Previous automobile shows held in Convention Hall have opened in the morning of the first day of the exhibition, but owing to the inability of the management to obtain possession of the auditorium until Sunday afternoon, it was impossible to finish the decorative work before this afternoon.

In brilliancy and artistic effect, the decorations surpass any previous exhibition ever attempted locally. The designer was Albert Hutter, and he reached the acme of decorative perfection. The decorations are simply magnificent, and the crowds, upon entering the hall, expressed admiration audibly. Band concerts will be held every afternoon and evening by the 65th Regiment Band.

Automobiles of every make and description are on exhibition. Trim roadsters, big touring cars, neat runabouts, stately landaulets and limousines and commercial wagons and trucks are shown. One of the first exhibits that greet the eyes of the admiring throngs is that of the George N. Pierce Company, which faces the main entrance. The Great Arrow is to be seen here, fresh from the factory and complete. There are big sixes and little sixes, Great Arrow 60-horsepower and Great Arrow 40-horsepower, and others.

Close by is the E. R. Thomas exhibit, continuously surrounded by an admiring crowd. Cars ranging from the little 16-20-horsepower towncar to the big six-cylinder flyer, which is the largest and most powerful automobile made in America, are displayed. The Thomas Company has nine different styles of cars on four styles of chassis. There are three Thomas Detroit cars at the show.

Three finished vehicles and a chassis composed the exhibit of the Babcock Electric Carriage Company. The concern also manufactures three other styles of vehicle. The chassis shown is the same as that on which the victoria and the coupe bodies are placed.

Diamond tires are exhibited by the Diamond Rubber Company. There are thirty-five exhibitors at the show.

### Boulevard Day to Be a Notable Local Event.

Thursday will be Boulevard day, when the admission price will be one dollar, and all receipts turned into a fund for the Niagara Falls boulevard. All the automobile manufacturers and agencies are booming Boulevard day, as everybody owning an automobile wants to see the much needed Niagara Falls boulevard completed.

The New York State Automobile Association will meet at the Automobile Club rooms on Thursday, and, after a dinner at the Buffalo Club, the directors will attend the automobile show and will thus contribute to the boulevard fund.

The list of exhibitors includes the following:

Maxwell-Briscoe Buffalo Co., Co-operative Auto Co., E. R. Thomas Motor Co., Poppenberg Auto. Co., Lewis & Linn, Brunn Carriage Mfg. Co., J. A. Cramer, Babcock Electric Carriage Co., Geo. N. Pierce Co., Imperial Motor Co., Buffalo Automobile Exch., Centaur Motor Co., E. E. Denniston, United Spring Co., American Leatherette Co., Jaynes Auto. Supply Co., Empire State Tire Co., Chief Mfg. Co., Meyer Carriage Co., Jas. G. Barclay, Iroquois Rubber Co., Walter Hayes, John W. Frey, Buffalo Motor Car Co., D. H. Lewis, Knoll & Turgeon, Neal, Clark & Neal Co., C. E. Miller, W. F. Kendt, Harry Bralnard, Harris E. Newton, Louis Engel, Jr., Model Auto. Co., W. F. Polson, International Acheson Graphite Co.

## 'FRISCO'S SHOW NOTABLY CONDUCTED BY WOMAN'S CLUB

**S**AN FRANCISCO, March 4.—On the morning of March 2, San Francisco witnessed its first decorated automobile parade. It was the occasion of the opening of the second automobile show, to be held in this city, which is under the auspices of the California Woman's Automobile Club. Shortly before 9 o'clock, one of the heaviest showers of the rainy season fell, and much trepidation was felt for the success of the opening event, but about 10 o'clock the clouds broke away and the sunshine smiled on the assembling cars.

It was a few minutes after eleven, however, when the marshal, Mrs. L. E. Morrill, in her beautifully decorated Franklin touring car, led the long line from the rendezvous at the head of Van Ness avenue. Preceding the car of the marshal were two large Thomas cars, filled with members of Bennett's band. Following the Franklin came the artistically decorated Maxwell runabout of the president of the California Woman's Automobile Club. The car was a mass of big yellow chrysanthemums and blue cornflowers, these being the colors of the organization. With Mrs. Frederick J. Linz, the president, was Mrs. Abbie Krebs, the vice-president. Mrs. Robert Christy, secretary of the club, followed next in a beautifully decorated Elmore touring car. Mrs. Christy was accompanied by a party of friends, composed mainly of members of the club. A big Thomas flyer was seen in the line of march, heavily draped in "Old Glory,"

which sent a thrill of patriotism through the hearts of the spectators as it proudly swept up the street. Another car which brought a cheer from the crowds on the sidewalk was a Maxwell touring car, so decorated as to represent a man-of-war, at the wheel of which sat a sailor, and in the tonneau Goddess of Liberty rode. This was awarded the second prize, as being the most novel and cleverly carried out design.

The winner of the first prize, Mrs. J. M. Etienne's White steamer, was completely covered in pink and white carnations, and gold butterflies and fleur-des-lis were sprinkled over the canopy of color, and a huge gilt sphere hung in the center. Mrs. Etienne had as her guests a party of women friends, all of whom were gowned in pink and white. This clever motorist drove her car and excited many admiring remarks. At the Coliseum, the judges awarded the prizes: the first, \$75, to Mrs. J. M. Etienne, and the second prize, \$25, to the Maxwell "man-of-war."

In the evening at 8 o'clock the doors of the Coliseum were thrown open to receive those who had been in the evening parade, which was even larger than the morning, and to the hundreds who had come out on the cars to witness the event. Mrs. Fred J. Linz introduced W. Parker Lyons, mayor of Fresno, who formally opened the exhibition, and after a few words of congratulation to the members of the California Woman's Automobile Club, introduced the speaker

of the evening, Wu Ting Fang, Chinese Ambassador to the United States, who was en route to Washington. His Excellency was very happy in his remarks, stating that he was glad the fair sex had achieved what the men in the trade had failed to do, and showed great interest in the exhibits.

#### Results of the Hill-climbing.

Tuesday afternoon was devoted to the first of the hill-climbs, the course lying from the front of the Coliseum to the summit of Buena Vista Heights, which is one of the finest courses for such an event for some miles around, having a number of quite perceptible grades and sharp turns, on a gradual rise.

The first event, for runabouts, was won by a Maxwell driven by Clarence King, a mile and one-eighth, in 2:55.

Second event, for runabouts, value \$1,500 and under—Won by Tourist, driven by Edgar Mason, time, 2:09; second, Auburn, 2:29 4-5, driven by Frank Bryant.

#### NEWARK'S SUCCESSFUL SHOW WILL REPEAT.

NEWARK, N. J., March 10.—So great was the success of the recent automobile show in Electric Park that it has already been decided to hold a second exhibition in the early months of 1909. W. H. Ellis, secretary of the New Jersey Automobile Trade Association, has applied to the Essex Troop for the use of its new armory, under construction on Roseville avenue. In both size and location, the Essex Troop Armory is superior to Electric Park auditorium, being near the Orange street car line, only a few blocks from the Warren street line and adjacent to the station of the Lackawanna Railroad.

The auditors' accounts show that the profits on the recent show will allow a rebate of nearly 10 per cent. on exhibition rental to all exhibitors. The members of the New Jersey Automobile Trade Association, who cooperate with the New Jersey Automobile and Motor Club in the holding of the show, will receive a larger return. There is a desire on the part of the officials of the automobile club to use the money for the purpose of erecting road and danger signs where the Department of Motor Vehicle Registration and Regulation has neglected to do so.

Prominent among the removals in "automobile row" next month will be the change of J. W. Mason to Halsey street, near Marshall street. The F. L. Boland Company will occupy a new one-story building at Halsey street and Branford place about May 1. With its removal, the company will change its name, F. E. Boland having withdrawn his interest in the concern. The Linkroom Automobile Company, agents in Northern New Jersey for the Lozier car, will remove from Bank street to Halsey street.

#### HARRISBURG ENTHUSIASTIC FOR SHOW.

HARRISBURG, PA., March 10.—Providing a suitable building can be obtained, an automobile show will be held here next April, under the auspices of the Motor Club of Harrisburg. Members of the club are strongly in favor of the exhibition, and, if suitable accommodations can be secured, it will certainly be held. The club has recently appointed the various working committees for the ensuing year.

#### PERFECT SCORERS IN MID-PACIFIC CONTEST.

HONOLULU, T. H., Feb. 24.—Nine American automobiles lined up in the second annual competition of the Automobile Club of Hawaii for the Von Hamm-Young Company challenge cup. E. L. King's White steamer, Frank Dillon's Buick, Sidney Jordan's Maxwell, E. Quinn's Buick, and J. Lewis' Franklin were the five to finish the round-the-island run with perfect scores.

Third event—free-for-all roadsters and runabouts—Won by Stearns, driven by D. A. Bonney, in 1:42; second, Winton, 2:20 2-5, driven by H. L. Owsney.

Tuesday night was under the patronage of the Automobile Club of California, and a large sprinkling of the smart set were in attendance at the show. Mrs. Fred J. Linz presented the winners of the afternoon events with handsome silver and copper cups, appropriately engraved.

The hill-climb for touring cars which was to have taken place on Wednesday had to be postponed on account of the wet weather, and will take place next Saturday.

#### White Wins in Three Touring Class Events.

SAN FRANCISCO, March 7.—In the hill-climbing contest postponed from last Wednesday owing to rain, a White steamer model L won in the \$2,500 class; a White model K captured first place in the \$3,500 class, and the same car made fastest time in the free-for-all race.

#### TOLEDO OPTIMISTICALLY PREPARES FOR SHOW.

TOLEDO, O., March 9.—Toledo's second annual automobile show will probably be held some time during the latter part of March, very likely in the Coliseum. The show last year was the biggest advertising stunt the local dealers ever participated in, and almost every exhibitor was well repaid for the time and money expended. This year the entire northwestern part of Ohio is to be covered with advertising matter, special rates are to be secured on the electric lines and on the steam roads if possible, and the Chamber of Commerce is figuring on joining and making the affair a general boost for the city as well.

Local automobile agents are expecting the best season they have yet had, despite the financial trouble of a short time ago. Prospective purchasers are plenty, and selling agents are now coming forward with advice to prospective purchasers to place orders early, as there is almost sure to be a shortage of cars before the season is ended. This shortage, they say, is due directly to the financial flurry, which caused many manufacturers to curb their operations.

Toledo is in the best possible condition to look after the automobile needs of this section of Ohio. A number of new garages have been equipped since last year, some new agencies have been established, and the stock of cars on exhibition at present is larger than ever before.

#### A CANADIAN TOWN'S ANSWER TO PROGRESS.

MONTREAL, March 7.—Charlottetown, P. E. I., is the name of the town which must be given the award for excelling in grandmotherly care for the automobile. Recently the Board of Trade of the township passed a resolution calling upon the government to cause all automobiles to be kept at home Sundays, Tuesdays and Fridays. Other regulations fenced in the automobile in such a stringent manner that there was no possibility of it ever overworking itself. A delegation from the Presbyterian church submitted complaints of their congregation that automobiles deterred many people from going to church.

#### ARRANGEMENTS COMPLETE FOR HOOSIER SHOW.

INDIANAPOLIS, IND., March 10.—All arrangements have been completed for the second annual automobile show, which will be held here March 23-28.

There are now thirty entries in the hill-climbing contest, and almost as many for the obstacle race. Permission has been granted to hold the latter on the North Capitol Avenue boulevard. It has been decided not to hold a formal banquet, but to substitute a smoker and lunch.



## NEW THINGS UNCOVERED AT BOSTON SHOW.

(Continued from page 346.)

the car was driven at a speed of 25 miles an hour over this combination of tire-destroyers without any damage resulting. The car was subsequently driven over the nail-studded boards at the slowest possible speed, but the result was equally favorable. The usual type of inner tube is employed in the Zeglen tire, and it does not differ from others in appearance.

**Suthergreen Tireholder.**—One of the novelties that has to do with the manner of carrying spares, rather than with the tires as such, is the Suthergreen swinging tireholder, made by F. S. Suthergreen, Manchester, Mass. Obstructing the driver's seat with the spare tire has long been one of the objectionable features of the usual method of carrying this indispensable replacement on the car, making it necessary to enter the car from the off side. This new tire holder swings out of the way in exactly the same manner as side entrance, and in addition to facilitating entrance to the driver's seat, it also makes that side of the car readily accessible for cleaning and oiling. The holder is not only made to swing out of the way, but by the removal of a single screw and pin, the holder and its tires may be lifted off completely.

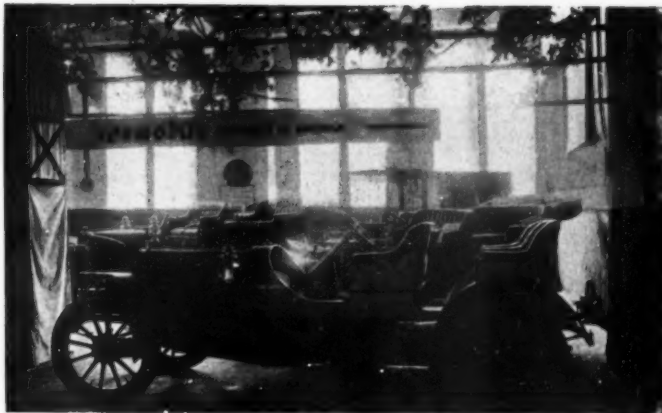
**Sterling Spark Plug.**—Though its name is similar, the Sterling spark plug for heavy duty, shown for the first time, is not another product of the firm in question, but is made by the Windsor Manufacturing Company, Worcester, Mass. Its chief feature is the employment of a vibrating electrode, which makes it impossible for oil or soot to collect on it, as the motion of the car and the motor cause it to vibrate rapidly. Its design is such that the readjustment of the sparking points is never necessary, as the distance between the surfaces remains unchanged, even though considerable of one of the electrodes happens to burn away. A special core of porcelain reduces the danger of cracking to a minimum.

**"Oilzum" and "Cleanzum."**—White & Bagley, Worcester, Mass., makers of the euphoniously christened "Oilzum" gas-engine oil, provided a novel treat in the shape of a huge glass-spoked wheel, the spokes being filled with translucent and transparent samples of lubricating oils, which showed to good effect, owing to the illumination placed behind them. Lubricating oils do not lend themselves readily to display purposes, on which account this novel and ingenious method of calling attention to them provoked more than the usual amount of interest. The same firm also showed the cleaning compound, which they have christened "Cleanzum," in an attractive manner.

**"Boston" Acetylene Gas Tanks.**—These tanks are newcomers, though they are the production of men of long experience in the business, George S. Atwater, who has been making bicycle and auto lamps and generators for a decade past, being the manager of the company, which is known as the Boston Autolight Company, with headquarters at 751 Boylston street. The tanks measure 6 by 24 inches, and are highly finished in copper or nickel, with bands to correspond. Their capacity is 60 cubic feet of gas, and they list at \$35, the price of recharging being \$2.

**Anderson Glass Spark Plug.**—An ignition novelty that is otherwise well known but which made its first appearance at a show in Boston this week, is the Anderson glass spark plug, or, as the makers call it, a "window" to the engine. It consists of glass pyro-electric welded directly to steel, and when in place in the cylinder the character of the spark may be noted by merely looking down on the top of the plug. It is made in a number of sizes and special styles in both metric and iron pipe threads. These plugs are made by the Anderson Spark Plug Company, Washington, D. C.

**"Valgrinok."**—An entirely newcomer is the National Valgrinok Company, 116 Bedford street, Boston, Mass., a firm that is placing on the market a special abrasive compound



This Big New England Factory Was Well Represented.



A Representative Trio that Was Capably Staged.



The Packard and Cadillac Showed Complete Lines.



Atlas, Baker Electrics, Springfields—Renaults, Next Stand.







In the East Gallery of the Main Exhibition Hall Many Houses Well Known in the Trade Made Effective Displays.

move exactly in proportion to the movement of the hand at all speeds. The only springs are those employed on each side of the governor, one of which shows in the illustration. The governor weights are designed to exactly counteract each other, so that vibration has been reduced to a minimum. Another feature of the Standard is that both the speed recording part of the instrument and the odometer operate whether the car is running forward or backward, the latter adding to the mileage just as if going forward. The calibrating of the dials is done with the aid of a special calibrating machine, the process of adjustment being so simple as to practically eliminate any possibility of error. The Standard is made in a number of types, ranging from zero to 40 miles, zero to 60 miles, and zero to 80 miles an hour, including a model with a maximum speed hand.

**Accessories of Various Kinds.**—In the field of windshields, the Nonpareil Brass Company, Providence, R. I., are newcomers, who show a line of brass and mahogany framed windshields of attractive design and finish, as well as ingenious types of tireholders, robe racks and other brass specialties.

A novelty that attracted no end of attention from the nature of its radical departure from previous standards in this field is the Half-Nelson emergency tire, shown by the Wood Carving Machine Company, Minneapolis, Minn. It is designed to stow away readily in the tool box and yet be ready at any time for an emergency blow-out or puncture plugging one of the pneumatics out of commission, and con-

sists of a number of sections of what is practically a solid rubber tire of the same size as the pneumatic it replaces. These sections are put on the rim one after the other and hooked together, the whole being tightened up by a turnbuckle arrangement.

The Draper Auto Robe Company, Canton, Mass., shows a complete assortment of all kinds of robes specially designed for automobile use, including a wide range of patterns in attractive styles.

Shove & Gage Company, Inc., Providence, R. I., is on the market with a new brand of polishes, namely, the U-Auto polish and the Shine Bright. An effective display of the same is made in the accessories department.

**Two New Motors.**—There has seldom, if ever, been a Boston show that did not bring to light one or more radically different novelties in the shape of motor design, and the appearance of the Blomstrom motor, shown in the cut on the opposite page, is sufficient evidence that the present function has maintained traditions. This motor is of the two-cylinder horizontal opposed, four-cycle type, but instead of being placed either transversely or longitudinally under the body, it is arranged lengthwise under the bonnet with its crankshaft vertical, in which respect it differs entirely from any arrangement of the power-plant of an automobile ever attempted. Upon a little consideration, it will be seen that this placing holds numerous advantages, particularly where the flywheel is utilized as one of the members of a friction transmission, as is the case here. As will be evident from the



How the Main Floor and West Gallery Looked to the Observer from the Southeast Corner of the Main Building.

photo, this placing not only permits of a long stroke motor of this type being employed under the bonnet, but renders every one of the small parts particularly accessible, the timer, force-feed oiler and carbureter all being in plain view and easy reach. In addition to its other advantages, this arrangement also solves the problem of overcoming the detrimental effects of gyroscopic forces set up by the heavy flywheel revolving at high speed.

The show is also responsible for the appearance of a rotary internal combustion motor, known as the "American." The rotor is elliptical in shape and is water-cooled, as is also every other part of the motor coming in contact with the hot gases. The explosion chamber is so designed that an explosion takes place on different sides of the rotor alternately, two exhaust outlets being provided.

#### TRYING TO ARRANGE MAXWELL STANLEY RACE.

BOSTON, March 10.—At a meeting to-day at the clubhouse of the Bay State Automobile Association arrangements were partially made for the Maxwell-Stanley challenge race for the Sir Thomas Dewar trophy. Present at the session were Benjamin Briscoe and J. D. Maxwell, and F. E. Stanley and F. O. Stanley, with Alfred Reeves, H. L. Bowden, J. C. Kerrison and Howard Reynolds as disinterested parties. It is proposed to change the conditions of the trophy so as to permit time trials instead of a race, owing to the great danger at the very high rate of speed assured. The event may be made open and Louis Ross may enter a car. As to where the event will take place, there seems to be considerable doubt. It is proposed that a 3-mile special cement course, 80 feet wide, be built by the manufacturers. Mr. Briscoe will learn if the Long Island Motor Parkway will be available for the purpose. Many consider that the parkway would be an ideal course for the contest, and it is quite likely that satisfactory arrangements can be made with the management for its use.

Henry B. Joy, president of the Packard Motor Car Company, and M. J. Budlong, recently appointed assistant manager, were at the show yesterday and to-day they are at Hartford, Conn. Their presence there has revived the rumor that the Packard company may secure the old plant of the Electric Vehicle Company.

#### AUTOISTS ASSEMBLED TO-DAY AT WASHINGTON.

WASHINGTON, D. C., March 12.—Delegates from the various State associations of the American Automobile Association to-day are in Washington, under the leadership of President William H. Hotchkiss and Chairman Charles T. Terry, of the Legislative Board, for the purpose of appearing at the hearing before a sub-committee of the Judiciary Committee of the House of Representatives, to present arguments in favor of the Federal Registration bill, fathered by the national automobile organization. A conference of delegates took place last night at the New Willard Hotel.

#### NEW YORK ASSOCIATION MEETS AT BUFFALO.

BUFFALO, N. Y., March 12.—The New York State Automobile Association of the American Automobile Association is to-day holding its annual meeting in Buffalo, with President Oliver A. Quayle presiding. To-night the delegates will be entertained at dinner at the Buffalo Club by the Automobile Club of Buffalo, and afterwards will visit the automobile show. To-night is society night. There is talk of re-electing President Quayle, whose work as chairman of the legislative committee has been exceptionally successful.

#### FORTIETH CLUB FOR N. Y. STATE ASS'N.

MOUNT VERNON, N. Y., March 10.—The Automobile Club of Mount Vernon, recently formed with a charter membership of fifty, has decided to become affiliated with the State Association of the A. A. A., making the fortieth club in the State of New York connected with the national body. Membership in the club is limited to automobilists in Mount Vernon and vicinity. It is anticipated that the century mark will be reached before June.

#### QUAKERS WANT REASONABLE USE OF GRIPS.

PHILADELPHIA, March 10.—Thursday of last week representatives of the local automobile clubs appeared before the Fairmount Park Commission to protest against the proposed ordinance restricting use of tire chain grips on the park roads. The autoists desire to use grips when the roads are muddy or slippery. The committee reserved its decision.



A Corner of the Second Floor, Where the Display of Accessories Was the Magnet That Attracted Many Visitors.



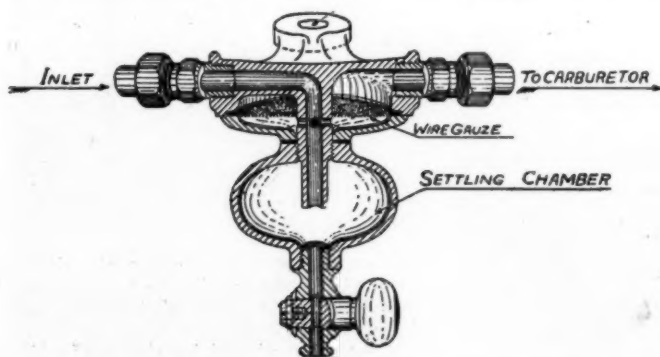
## THE PERFECTION OF AUTOMOBILE IGNITION.

(Continued from page 353.)

whether the engine is running 100 or 2,000 revolutions, and it should respond more rapidly at high speeds than at low, but it is apparently impossible to make such a magnetically operated make-and-break in the form of a vibrator. The instrument for demonstrating this advance spark theory consists of a model of a gas engine with its cylinder and piston, connecting rod and crank, but secured to the crank pin is a small pointer *K*, which rotates within a metal ring *L*, clearing it about 1-4 inch. The wires from the secondary of the spark coil are connected to the insulated metal ring *L*, and to the crank and pointer *K*, so that the spark will jump from the pointer *K* to the ring *L* while the engine is in operation. We now set the timer in such a position that in turning over the engine slowly by hand in the direction shown by the dotted-lined crank, we will get a spark when the crank is at the point of maximum compression, as shown in the diagram. If the engine is now speeded to 1,000 r.p.m., without moving the timer, we would find the spark jumping across at *B*, or, in other words, it would be 90 degrees late. This lateness of the spark is entirely due to the lag of the vibrator and the magnetic lag of the iron core, and we must advance the timer an equivalent amount to balance up the two. By varying the speed of the engine, the spark moves from the position *A* to *B*. My object in designing this instrument was to prove that the ignition in a gas engine should take place at the highest point of compression, and it approximately does so when the engine develops greatest power, also that time required to ignite charge is small and requires little advance.

## THE NEW SCHEBLER GASOLINE FILTER.

Every autoist who has had the slightest experience soon realizes the importance of preventing water, dirt or other foreign matter of whatever nature from reaching the nozzle of the carburetor, and he also realizes, sooner or later, that even the most painstaking precautions are not always sufficient to accomplish this. There must be a last line of defense, and this is to be found at or near the carburetor itself. The method of doing this is clearly illustrated by the



Cross Section of the New Schebler Gasoline Filter.

accompanying line sketch showing the Schebler strainer in cross section. Its arrangement is such that the gasoline cannot reach the carburetor without first passing through the fine mesh screen and gauze.

The bowl is so designed that the heavier particles of dirt and all water will collect there, the drain cock at the bottom permitting their escape. To facilitate the removal of matter that cannot escape through the cock, the bowl is made removable. When the gauze becomes dirty, the bowl and lower half of the entrance chamber may be instantly removed, rendering the screen perfectly accessible. The Schebler strainer is fitted with a bracket for attaching to a support, and should be connected so that the gasoline flows in the direction indicated by the arrows.

## ALLEN-KINGSTON NOT INVOLVED IN FAILURE.

The New York Car and Trucking Company, of which Orlando F. Thomas was president, is now in the hands of an official receiver. The company was incorporated under the laws of New Jersey, May 5, 1906, with a capital stock of \$2,500,000, its works being at Kingston, N. Y. It succeeded the bankrupt Peckham Company as manufacturers of car trucks and automobiles. Though a portion of the works was devoted to the construction of the Allen-Kingston car, the Allen-Kingston Motor Car Company is financially independent of the bankrupt concern, and, according to the statement of Walter C. Allen, its president, will be in no way affected by the reverse. That portion of the works devoted to automobile construction will be bought from the receivers or a separate factory will be secured.

The assets of the New York Car and Truck Company are declared to be about \$75,000. Among the creditors are: Harry J. Schnell, \$61,500, for loans; Carl Coonley, \$5,000, loans, and Colby M. Chester, \$1,768, for merchandise. Judge Holt has authorized the receiver to continue business twenty days.

## PLAN TO REORGANIZE RELIANCE COMPANY.

LANSING, MICH., March 2.—It is expected that the plant of the Reliance Motor Car Company of this city, which has now been shut down for some time, will shortly resume operations, as capitalists interested in the Reo and Olds plants have advanced \$100,000 to put the company on its feet again. Victor N. Gurney, of Detroit, has been appointed receiver, pending the reorganization which is now under way. It is reported that all creditors will be paid in full. The company was incorporated in 1904 with a capital of \$400,000. Its officers are: President, Fred. O. Paige; vice-president, J. M. Ulkey; secretary, J. B. Corliss; treasurer and general manager, E. W. Gans; sales-manager, F. L. Loomis; engineer and superintendent, H. A. Wilcox. The company was authorized to issue \$150,000 in bonds, of which \$130,000 were sold. The Union Trust Company was a trustee under the mortgage to secure the bonds and the receiver has been appointed on its petition.

## DARRACQ AUTO COMPANY IN RECEIVER'S HANDS.

A petition in bankruptcy has been filed against the Darracq Motor Car Company, of 1989 Broadway, incorporated January 12, 1906, with a capital stock of \$100,000, reduced to \$50,000 on April 6, 1906. A few days ago, E. Lamberjack & Co. obtained a judgment against the company for \$2,088 for tires, execution of which was issued by the Sheriff. Judge Holt, of the United States District Court, appointed Lindsay Russell receiver, with a bond of \$50,000. The company has automobiles valued at \$75,000, separate parts and accessories, \$18,000, and machinery and tools valued at several thousand dollars. Liabilities are declared to be \$100,000. G. W. McWilliams was president; C. D. Wilder, treasurer, and Ben Wood, secretary.

## CONCERNING POPE INDIANAPOLIS PLANT.

INDIANAPOLIS, IND., March 10.—Although it cannot be confirmed, there is a strong rumor that local capitalists are organizing a stock company to take over the Waverly plant of the Pope Motor Car Company.

The rumor connects two men who have been with the local automobile industry since its incipency, as the promoters of the company. However, neither are willing to make a definite statement at this time, until the matter has developed further.

Electric automobiles are manufactured in the local Pope plant exclusively, and it is understood that the new company would push the commercial vehicle end of the business especially.

## BRIEF ITEMS OF NEWS AND TRADE MISCELLANY

An accidental use of the emergency brake put an end to the Franklin non-stop run after the 28-horsepower car had run for 18 days 8 hours 50 minutes. The end of the test came at Cincinnati, after journeys in the States of New York, Ohio, Indiana and Kentucky.

Owing to an error in transcription, the fuel consumption of the 45-horsepower, 7-passenger Lozier in the Long Island economy test was stated as 27.75 gallons of gasoline, instead of 25.75 gallons. Total distance, according to the indicators of a majority of the cars, was 234 miles, which gives an average for the Lozier of over nine miles to the gallon with seven passengers, hood, full touring equipment and spare tires.

An excellent record was made by Continental tires in the recent Ormond-Daytona races. The 100-mile race for the Minneapolis International Championship trophy, the 160-mile event for stock cars, and the 288-mile event for the Automobile Club of America Cup, were all won on Continentals. In this latter event a world's record of 300 miles in 233 minutes 44 seconds was made; the makers feel justly proud of the performance. Many important racing events in Europe for the past year or two have been won on Continentals and a large number of racing cars to be used in America this year are also fitted with them.

Following up its aggressive campaign against manufacturers who have been making and marketing lamps that are colorable imitations of the Rushmore flare front headlights and searchlights, the Rushmore Dynamo Works, Plainfield, N. J., have recently extended their efforts to take in the jobbers and have obtained injunctions against several dealers in New York City within the past week or two. This is in addition to the injunction issued against the Manhattan Lamp Works, the latter having been the defendant in the test case brought to establish the claim in the United States Circuit Court. This injunction has been made permanent.

The announcement of the classes in the hill-climbing competitions to be held in connection with the New York City automobile carnival during the first week in April does not meet with the approval of George W. Bennett, manager of the metropolitan branch of the White Company. There are six events restricted to gasoline cars of various prices, one for steam cars, one for electrics, and one free-for-all, thus limiting the White cars to two events, that for steam cars only, and the free-for-all. Mr. Bennett claims that such a distinction is unfair, and that his cars should be admitted in the price classification, stating that the White cars are in direct competition with gasoline cars of equal price, and that to bar them from the competition is unsportsmanlike.

### RECENT TRADE CHANGES.

The Diamond Rubber Company's branch at Pittsburg, Pa., has been moved to a fine new store specially fitted up for its occupancy at 6122 Center street, East End, that city.

The Morse garage at Lenox, Mass., has been leased to Oscar R. Hutchinson, who will carry on the business of the late

Thomas S. Morse, who established the business. Mr. Hutchinson will handle the Pope line of cars and carry a large line of sundries. Several improvements will be made in the garage and repair shop to handle the steadily increasing business.

### NEW AGENCIES ESTABLISHED.

The Simplex Motor Company, of New York, has opened a Boston salesroom at 173 Huntington avenue, that city.

The Blue Ribbon Auto and Garage Company, Bridgeport, Conn., has been appointed Lozier agent for the section of Fairfield county east of Green's Farms and North Wilton.

The Northern Motor Car Company during the past ten days has placed the following agencies: H. M. Jarboe, Carrollton, Mo.; Bert Nelson, Bennington, Kan.; W. H. Thompson, Junction City, Kan.; Colonial Motor Car Company, Springfield, Mo.; White Garage, Oakland, Cal.

The Hamilton-Kull Company has been formed and begun operations at 1677 Broadway, New York City, as the Eastern distributors for the Aerocar Motor Company of Detroit. Of this company, Douglas Hamilton is treasurer and A. L. Kull is manager. The company is thoroughly equipped to handle the Aerocar throughout the Eastern territory.

### PERSONAL TRADE MENTION.

H. W. Doherty, formerly of the Corbin Motor Vehicle Corporation, has been appointed sales manager of the Cameron Car Company, of Beverly, Mass., and will handle the output of the company's Brockton and Beverly factories.

### NEW YORK SANCTIONS PARADE.

By the granting of permission from the city authorities to use the streets of New York on the evening of April 7 for a monster parade and street exhibition, the organization of the New York Automobile Trade Association's carnival week has taken a step forward. The parade, which is to be one of the main features of a unique carnival, will counter-march on Broadway, above Fifty-ninth street, the judges' stand being located at some point on upper Broadway, in the park strip between east and west divisions of the street. It is at this point also that the press stand will be erected. Full liberty for individual fancy will be given in the decorated section of the parade, and competition will be stimulated by three prizes to the owners of the three best decorated cars in the procession. In addition, a special prize will be awarded to the owner of the most grotesquely decorated car. In this section no marks of identification will be allowed other than prominently displayed uniform numbers. In the dealers' section, decorations will not be permitted to a moderate extent. Racing models and commercial vehicles lent by firms employing them in daily service will add to the completeness of the exhibition.

A price classification will be adopted for the hill climb on Thursday, April 9, the prices starting at \$1,000 and less, and running up through six divisions of one thousand dollars to the highest class, selling at more than \$5,000. One class is provided

for steamers at any price, and another for electric automobiles. A free-for-all, racing or stock class, will also be unfettered by any price limit. An early announcement is expected regarding the place of the hill climb, and will be followed by the sending out of entry blanks to possible contestants.

The board of governors of the Automobile Club of America has voted to postpone the regular Tuesday evening club night of carnival week to Saturday evening, April 11, on which occasion a smoker will be given in the new clubhouse on Fifty-fourth street, west of Broadway, to members of the club and the automobile trade, who will participate in the carnival. The carnival committee will make presentations on this evening of the cups, prizes and trophies won during carnival week. This will include the prizes for the best decorated cars in the parade, which will take place Tuesday evening, and the prizes won in the hill climbing contest, which will be held on Thursday.

### SIGNPOSTING OF THE ROAD.

ROCHESTER, N. Y., March 9.—On every public highway entering Rochester, particularly the arteries of automobile travel, there have just been placed a series of signposts similar to the one illustrated. These posts are accurately located, for a distance of twenty-five miles outside of the city, being a mile apart,



and serve not only to test the distance covered, but as a guide to the best roads entering Rochester and how to follow them.

They were placed by the Duffy-McInerney Company, both Mr. McInerney, the general manager, and Mr. Campbell, the advertising manager, being enthusiastic motorists. If some store in each large city would "go and do likewise" there would soon be a continuous chain of mile posts all the way across the country.

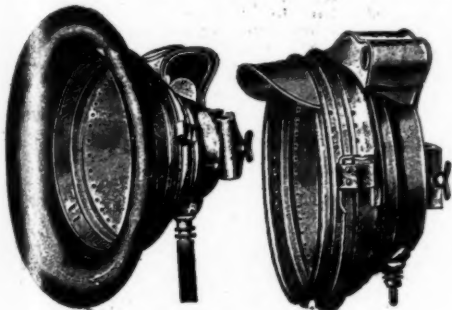
### NEW TRADE PUBLICATIONS.

Catalogue D from the Rapid Motor Vehicle Company, Pontiac, Mich., describes the different types of model D rapid delivery vehicle. The catalogue, which is an excellent piece of typographical work, contains illustrations in black and in colors of mechanical features of the "Rapid" and examples of types of bodies generally used for commercial work.



## INFORMATION FOR AUTO USERS

**Motor Cycle Lamps and Generators.**—The Motor Car Equipment Company, 55 Warren street, New York, among its numerous specialties are making an unusual showing of imported motorcycle



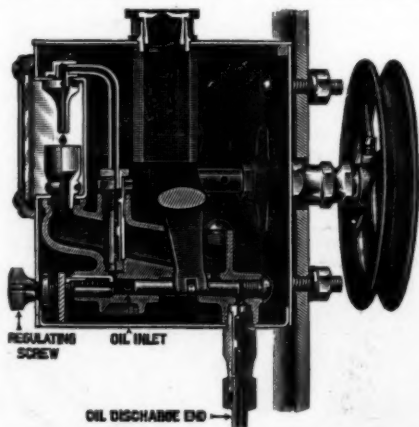
MOTOR CAR EQUIPMENT CO. HEADLIGHTS.

headlights and generators. They are designed particularly for use on bicycles and motorcycles and are very light and compact so as to be conveniently carried on the machine. The lamps are of the flare front type, finished in nickel and have nickel trimmings, so that they make a very attractive appearance. The generators are very simple and compact and are designed to have a capacity of 8 to 10 hours burning with the 1-4-inch burner used in the lamps. Three sizes of lamps and generators are made, two of the flare-front type and one an attractive oval headlight model, the generators holding 1-2, 3-4 and 1 1-3 pounds of carbide respectively.



M. C. E. CO. GENERATOR.

**Standard Automatic Lubricator.**—The Standard Automatic Lubricator Company, 367-369 Ellicott street, Buffalo, N. Y., manufacture a very extensive line

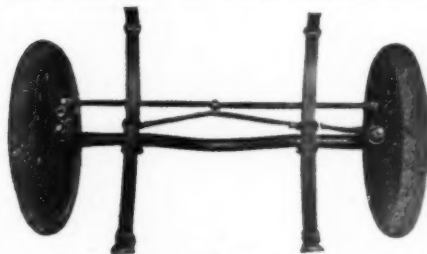


SECTIONAL VIEW STANDARD LUBRICATOR.

of mechanical oilers particularly designed for automobile and motor boat use. They are made with six different sizes of oil reservoirs, ranging from 2 to 12

pints capacity, and from one to 18 individual feeds. These oilers are designed to be placed either on the dash or under the hood of the car and are so made that they can be driven from the right or left-hand side, either end, the bottom or front of tank, thus making them universally applicable, which is a great advantage where room is limited as under the bonnet of an automobile. The sight feed and adjustments are placed on the front wall of the reservoir, thus permitting the removal of the cover without disturbing any of the pumping mechanism. The oil is drawn into a double-acting pump by the backward stroke of the intake plunger through a small port which is incased in a strainer to prevent the entrance of any foreign matter. On the forward stroke, the plunger closes the port and imprisons the oil in the cylinder, forcing the regulating piston back until it rests against the adjustment stop in regulator screw, then the pressure raises the double ball checks and the amount regulated flows from the drip nozzle.

**"The Little Steersman."**—This is a little device that is being manufactured and placed on the market by the Abrams-Mason Company, Chatham, New York, and it is one of those things that hundreds of drivers have been on the lookout for. It consists of a double helical spring designed to be attached to the connecting link of the steering gear and to the forward spring clips at the axle and is intended to relieve the driver of



STEERSMAN DEVICE APPLIED TO CAR.

all physical strain in keeping the wheels in the straight ahead position when traveling over rough and uncertain roads. The tension is so regulated that no extra exertion is required to turn corners, and yet is sufficient to keep the car straight even under extremely adverse conditions, such as the bursting of a front tire when running at speed.

**Decarbonizer.**—This is an oily substance mixed with chemicals designed to combine with the carbon, and with the aid of the combustion taking place in the cylinder, to volatilize it, in which it readily passes out the exhaust as dense smoke, leaving the cylinder, piston and rings in a perfectly lubricated condition, free from carbon and resinous substances. The process requires about 15 minutes for its completion and the cost is merely nominal. It is guaranteed by the makers to be absolutely harmless when used in connection with gas or gasoline engines. The engine should be hot before using the Decarbonizer, and it is preferable to run it comparatively dry for a few minutes just prior to using it. The General Accumulator & Battery Co., Milwaukee, Wis., are the makers.

**Two-Spot Spark Plug.**—"Two-Spot by name, two-spot by nature and each spot a concentration of electrical intensity, assuring complete, positive and rapid ignition," say the makers of this new plug in describing it. As will be evident from the accompanying illustration showing one of these plugs complete, its chief feature consists of the exclusive design of the electrodes which permits the plug to produce two distinct sparks every time the current passes and which increases its factor of reliability by 100 per cent., as but one of the sparks is necessary to ignite the charge, and it is an extremely rare probability for both of the gaps to become short-circuited or sooted up at the same time—this also being prevented by their special construction, which tends to keep them clean and free from oil and soot. This new plug is being made and marketed by the Two-Spot Manufacturing Company, Canastota, N. Y., and is already meeting with considerable favor, especially for marine use.



TWO-SPOT SPARK PLUG.

**Mossberg Display Stand.**—How to attractively display small tools is a problem with the dealer, and to overcome this the Frank Mossberg Company, Attleboro, Mass., have come to the dealer's aid by bringing out a special display



MOSSBERG'S WRENCH DISPLAY STAND.

stand for effectively showing samples of their extensive line of wrenches, as will be seen by the accompanying illustration. The stand is capable of holding 20 different types and sizes of wrenches. It stands 17 inches in height and has a base 7 inches in diameter. It is finished in bright nickel plate and when mounted full of wrenches makes an attractive counter or window display.

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Beliffuss Motor Co.	72	Gibney & Bros., Jas. L.	61	Morgan & Wright.	57	Supplementary Spiral Spring	69
Beloit Supply Co.	97	Goldberg Motor Car Devices		Mosler & Co., A. R.	62	Swinehart Clincher Tire Co.	73
Black Mfg. Co.	64	Mfg. Co.	63	Moss Photo Engraving Co.	86	Syracuse Aluminum & Bronze	60
Blasier Mfg. Co., M. E.	62	Goodrich Co., B. F.	Cover	Motz Clincher Tire & Rub. Co.	57	Co.	60
Blomstrom Mfg. Co.	71	Grout Bros. Auto Co.	100	Mound Tool & Scraper Co.	81	Thomas Motor Co., E. R.	81
Boker & Co., H.	60	Ham Mfg. Co., C. T.	67	Mutty Co., L. J.	62	Thompson Sons Co., J. P.	57
Bosch, Robert	99	Hardy Co., The R. E.	53	National Auto Accessories Co.	60	Timken Roller Bearing Axle Co.	96
Boston Auto Gage Co.	68	Harris Oil Co., A. W.	53	National Motor Vehicle Co.	100	Tincher Motor Car Co.	90
Bowser & Co., S. F.	91	Hartford Rubber Works Co.	55	Neustadt Auto & Supply Co.	82	Torbensen Motor Car Co.	62
Boyle & Co., John.	95	Hartford Suspension Co.	54	Never-Miss Spark Plug Co.	53	Tray Plate Battery Co.	72
Brennan Motor Mfg. Co.	90	Hatcher Auto Parts Co.	73	New England Motor Co.	83	Trebert Gas Engine Co.	57
Brown Co.	72	Hatfield Motor Vehicle Co.	58	N. Y. Gear Works.	56	Troy Carriage Sunshade Co.	86
Brown, Wm. W.	53	Haynes Automobile Co.	90	N. Y. Sporting Goods Co.	65	Tucker, C. F.	53
Brownell Motor Co., F. A.	66	Healy Leather Tire Co.	57	Nichols & Co., D. P.	92	Uncas Specialty Co.	69
Brush Runabout Co.	88	Hedgeland Mfg. Co.	98	Nordyke & Marmon Co.	67	U. S. Fastener Co.	74
Buckeye Jack Mfg. Co.	73	Heinze Electric Co.	75	Northway Motor & Mfg. Co.	70	Veeder Mfg. Co.	83
Buckeye Mfg. Co.	58	Heltger Carburetor Co.	64	Nuttall Co., R. D.	80	Vehicle Specialty Corporation	67
Buffalo Carburetor Co.	73	Hercules Auto Specialty Co.	81	Oakland Motor Car Co.	60	Walker Mfg. Co., E. C.	69
Bullard Automatic Wrench Co.	75	Herz & Co.	60	Ofeldt & Sons.	53	Warner Instrument Co.	93
Buod & Scheu.	62	Hess-Bright Co.	60	Olds Motor Car Co.	58	Warner Pole & Top Co.	92
Byrne-Kingston Co.	85	Hicks Speed Indicator Co.	71	Owen & Co., R. M.	57	Watt-Detroit Carburetor Co.	90
		Hoffecker Co.	52	Pacific Tucking & Mfg. Co.	53	Waukesha Motor Co.	62
Cadillac Motor Car Co.	58	Hoffman, Geo. W.	53	Packard Electric Co.	50	Wayne Automobile Co.	67
Cameron Car Co.	57	Holt & Beebe.	58	Packard Motor Car Co.	107	Weed Chain Tire Grip Co.	57
Canton Drop Forge & Mfg. Co.	60	Holley Bros. Co.	74	Palmer & Singer Mfg. Co.	111	Welch Motor Car Co.	81
Capitol Auto Co.	62	Holsman Automobile Co.	66	Pantasote Co.	62	Western Motor Co.	72
Carr, F. S.	72	Hotel Fredonia	74	Parish & Bingham.	60	Weston Elec. Instrument Co.	88
Chadwick Engineering Works.	69	Hotel Piney Woods Inn.	74	Parker, Stearns & Co.	71	Wheeler & Schebler.	94
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Chandlee & Chandlee.	68	Hotel Tower	74	Penn. Auto Motor Co.	58	White & Bagley Co.	Cover
Case & Hechinger.	56	Hotel Westminster	74	Perfection Grease Co.	71	Whitmer & Remy.	74
Chicago & Alton Ry.	56	Howard Motor Works.	59	Perfection Spring Co.	60	Whitney Mfg. Co.	82
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Cleanola Co.	69	Imperial Motor Car Co.	101	Pfanstiehl Elec. Laboratory.	70	Witherbee Igniter Co.	67
Cleveland Motor Car Co.	87	Indestructible Steel Wheel Co.	54	Pierce Engine Co.	57	Wright Cooler & Hood Co.	72
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Coes Wrench Co.	106	Jeannin Auto & Mfg. Co.	83	Pirelli & Co.	57	York Motor Car Co.	54
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